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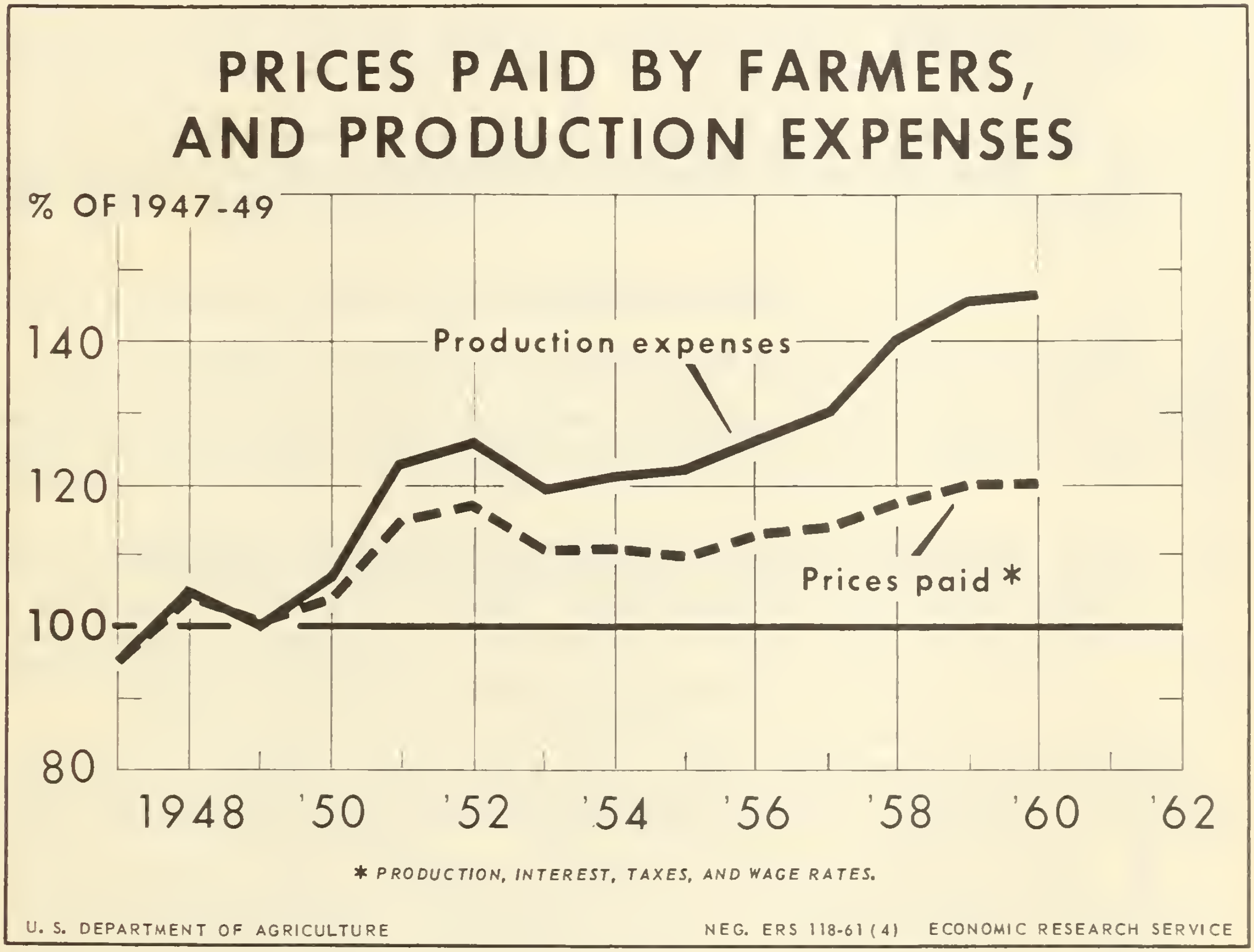
THE FARM COST SITUATION

Economic Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE

FCS-30 MAY 1961



Higher prices accounted for about half of the rise in farm production expenses from 1947-49 to date; larger quantities purchased accounted for the remainder. Greater specialization led to purchases of more goods from other farmers as well as purchases of more goods and services from nonfarm sources.

Goods and services used in production: Index numbers of cost rates and prices paid by farmers, United States
(1947-49=100)

Year or period	Commodities, interest, taxes, and wage rates	Commodities only	Feed	Livestock	Motor supplies	Motor vehicles	Farm machinery	Farm supplies	Building and fencing materials	Ferti- lizer	Seed	Wage rates
Average:												
1910-14	39	42	43	29	---	---	42	42	34	70	41	23
1915-19	59	63	68	44	---	---	54	70	48	101	62	34
1920-24	65	61	60	33	---	---	65	77	57	101	60	42
1925-29	65	61	58	44	94	49	64	73	54	92	60	43
1930-34	50	47	39	25	74	49	61	61	47	75	40	28
1935-39	49	52	45	36	74	56	64	60	49	71	49	28
1940	49	52	43	41	71	56	64	62	49	69	42	30
1941	53	55	47	46	74	59	65	66	53	69	40	35
1942	60	62	57	54	79	64	69	73	58	76	54	46
1943	68	69	68	61	81	67	71	82	60	81	68	61
1944	73	73	75	58	82	73	73	86	64	83	77	74
1945	77	74	74	63	82	75	74	87	66	84	79	83
1946	83	81	87	72	84	77	76	88	72	85	81	90
1947	95	95	102	90	92	90	86	95	93	93	93	97
1948	104	105	109	111	103	100	101	100	104	102	109	103
1949	101	100	89	99	105	110	113	105	103	105	98	100
1950	104	104	91	116	106	110	115	105	105	101	94	99
1951	115	115	102	141	111	118	124	112	117	106	96	109
1952	117	116	108	118	112	123	129	119	118	109	109	117
1953	111	108	98	85	114	122	130	116	118	110	99	120
1954	111	108	98	87	116	123	130	112	118	110	93	118
1955	110	106	91	85	117	122	131	110	120	109	98	120
1956	111	106	89	79	119	127	135	111	125	106	86	124
1957	114	108	87	89	124	136	142	112	129	107	89	130
1958	117	111	86	109	123	142	148	112	130	107	88	134
1959	119	112	86	109	124	147	156	111	133	106	84	142
1960	120	112	84	103	125	145	160	112	133	106	87	147
Jan.	120	112	85	103	---	149	---	---	---	---	---	147
Feb.	120	112	85	104	---	---	---	---	---	---	87	---
Mar.	121	113	85	109	124	147	159	111	133	---	87	---
Apr.	122	113	86	113	---	---	---	---	---	106	88	151
May	121	113	86	109	---	---	---	---	---	---	88	---
June	120	112	85	102	124	145	159	112	133	---	---	---
July	120	111	84	97	---	145	---	---	---	---	---	147
Aug.	119	111	84	95	---	---	---	---	---	---	---	---
Sept.	119	111	84	97	126	143	161	112	132	107	88	---
Oct.	118	111	83	98	---	139	---	---	---	---	---	143
Nov.	118	111	81	101	---	---	---	---	---	---	---	---
Dec.	120	112	82	106	126	144	161	112	132	---	---	---
1961:												
Jan.	121	113	84	109	---	144	---	---	---	---	---	148
Feb.	122	113	85	108	---	---	---	---	---	---	85	---
Mar.	122	114	85	111	126	144	162	112	132	---	86	---
Apr.	122	113	84	109	---	---	---	---	---	107	86	150

Statistical Reporting Service.

THE FARM COST SITUATION

Approved by the Outlook and Situation Board, May 8, 1961

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THE GENERAL SITUATION

Farm production expenses are expected to reach a new peak in 1961, although not much above the 1960 total of $26.3 billion. Part of this increase will result from higher prices for some production items. But a part of the rise, also, will result from further specialization, more intensive production, and use of more goods and services from nonfarm sources.

Expenditures for power and machinery, feed, replacement and feeder livestock, fertilizer, interest, real estate taxes, and utilities are expected to be higher in 1961 than in 1960. Expenditures for seeds may be lower. Little change is expected in expenditures for hired labor, building materials, pesticides, and cash rents.

Cost rates of all goods and services used in production will average only slightly higher in 1961 than in 1960. Wage rates may be slightly higher, although the rise from 1960 will be smaller than recent year-to-year increases. Prices of farm machinery will be higher, but prices of automobiles will likely average lower. Much of the past increase in machinery prices reflected the increase in size and versatility of machines, and this also is a factor in the higher prices of 1961. Conversely, the lower prices expected for automobiles in 1961 will result from the sale of a larger proportion of compact cars.

Changes in the prices paid by farmers for production items from the spring of 1960 to the spring of 1961 were as follows:

Production items	Percentage change 1960 to 1961
Livestock (Apr. 15)	-3
Feed (Apr. 15)	-2
Motor vehicles (Mar. 15)	-2
Building and fencing materials (Mar. 15)	-1
Seed (Apr. 15)	-1
Wage rates (Apr. 1)	1
Fertilizer (Apr. 15)	1
Farm supplies (Mar. 15)	1
Motor supplies (Mar. 15)	2
Farm machinery (Mar. 15)	2
Farm real estate taxes (annual average)	8

During the remainder of 1961, prices of feed may be slightly higher than in the same period in 1960 due to an increase in the number of livestock to be fed, expected higher prices for protein concentrates, and the possible effects of the feed grain program. Prices of replacement livestock also will be higher than a year earlier. Last year, prices were lower because preliminary reports indicated that numbers of cattle on farms were larger than those that were subsequently reported by the census.

Little change is expected in prices of fertilizer, building materials, and pesticides. Prices paid for seed will continue to average lower in 1961 than a year earlier. Lower interest rates on new loans are also expected, although total interest payments on farm mortgages will be substantially larger than in 1960.

Since 1947-49, farm production expenses have risen 46 percent, while prices paid for production goods and services have risen only 20 percent (see cover chart), thus indicating that quantities of production components purchased rose faster than prices paid. This reflects increased purchases of feed and livestock from other farmers, as well as purchases of more nonfarm goods and services.

On individual farms, changes in costs per unit of production from 1959 to 1960 were due more to changes in production than to changes in cost rates. On 17 of 32 types of farms for which comparable data are available, operating expenses per unit of production were higher in 1960 than in 1959; on 15 others, they were lower in 1960.

Similarly, prices paid were higher in 1960 than in 1959 on 14 types of farms, with the greatest increase on cattle ranches in the Intermountain Region. On these ranches, prices paid for all purchased items averaged 6 percent higher in 1960. Most of the rise was caused by the higher prices paid for hay. Prices paid averaged lower, however, on eight types of farms; for example, they dropped 6 percent on New Jersey egg-producing farms because of the lower prices of feed.

In 1960, the value of total assets on commercial farms continued to rise. On January 1, 1960, they were higher than a year earlier on all except 6 of the 32 types of farms studied. On 8 types of farms, the value of assets averaged more than $100,000 per farm, and on 2 of these farms, it exceeded $200,000 per farm. On six other types of farms, the value of assets averaged between $80,000 and $100,000 per farm. In addition to invested capital, most of these farms used from $5,000 to $15,000 a year for operating expenses.

FARM LABOR

Average farm wage rates for the entire country were four-fifths of one percent higher on April 1 this year than on April 1, 1960. But the changes in cash wage rates during the last year varied considerably among different parts of the country (table 1). In six States, chiefly in the northeastern quarter of the country, wage rates were a little lower on April 1 this year than in the spring of 1960. In California, Florida, and New Mexico, the rates were higher than a year ago by 4 percent or more.

The rise in U. S. average farm wage rates from April 1, 1960, to April 1 of this year was the smallest increase in April 1 rates since 1954. This was true also of the change in rates between January 1, 1960, and January 1 of this year. In the last five quarters, the rise in farm wage rates has been diminishing. In each quarter, the rise above a year earlier was smaller than for the previous quarter, as shown by the tabulation that follows:

Date	Percentage increase from a year earlier
Apr. 1, 1960	4.6
July 1, 1960	2.0
Oct. 1, 1960	1.7
Jan. 1, 1961	1.5
Apr. 1, 1961	.8

Many factors influence wage rates on farms. In the current labor market, the persistently large numbers of unemployed workers is an important influence. Until economic activity expands and the number of unemployed workers declines, the large number of unemployed workers will have a depressing effect on increases in farm wage rates.

Many hired farmworkers are paid on a piece-rate basis, particularly for harvesting jobs. Wage rates for hand-picking cotton last fall were higher than in 1959 in five States, the same in two, and lower in nine. The beltwide rate was $2.70 per hundredweight of seed cotton, or 10 cents less than in the

Table 1. - Average farm wage rates, by regions, Apr. 1, 1961, compared with rates on Apr. 1, 1960

Region	Average wage rates, Apr. 1, 1961 1/				Percentage change 1960 to 1961 2/
	With board and room, per month	Without board or room		Composite per hour	
		Per day	Per hour		
	Dollars	Dollars	Dollars	Dollars	Percent
New England	156	9.70	1.16	0.97	0.6
Middle Atlantic	144	8.80	1.10	.79	-.6
East North Central	143	8.80	1.08	.72	.8
West North Central	150	9.20	1.08	.78	2.1
South Atlantic	3/	5.80	.77	.59	4.2
East South Central	3/	4.70	.64	.46	1.3
West South Central	3/	6.30	.76	.64	1.6
Mountain	177	9.00	1.04	.86	2.0
Pacific	229	3/	1.25	1.22	3.6
United States	148	6.50	1.04	.76	.8

1/ Selected from 9 types of rates for which averages are reported. Composite is hourly equivalent of all types of rates.

2/ Based on composite rates per hour. The smaller percentage increase in the United States as compared with most regions results from a relatively greater employment in lower rate areas during the survey week of 1961.

3/ Relatively unimportant in this region.

From the monthly report, Farm Labor, prepared by the Statistical Reporting Service, U. S. Department of Agriculture.

fall of 1959. Greater use of machines in harvesting cotton has been cited as the chief reason for the overall decrease.

As indicated in table 1, farm wage rates in the Pacific Region are higher and have risen more during the last year than in most other parts of the country. The above-average increase in this region occurred, partly at least, because of the demand for large numbers of seasonal workers, and attempts to organize these workers into bargaining unions. Efforts to unionize farmworkers in California are continuing in 1961.

Increased acreages of some crops that require large numbers of workers are in prospect this year. Around the first of March, farmers indicated that they intended to plant 11 percent more acres of sugar beets, 5 percent more of potatoes, and 2 percent more of tobacco than were planted in 1960. Cotton acreage allotments also are 5 percent greater than in 1960. The prospective increase in acreage of sugar beets came from the removal of allotments; it would result in a record 1.1 million acres. If this acreage materializes, demand for workers in sugar beet areas will be stronger during the thinning and hoeing season. Greater use of monogerm seed and mechanical thinners will tend to offset the effect of additional acreage on numbers of workers needed.

The cotton allotment for 1961 is 18.5 million acres. This is about a million acres, or 5 percent, more than the 1960 allotment and almost 15 percent more acres than were planted last year. Thus, more seasonal workers may be needed in the Cotton Belt for chopping and hoeing and fall harvesting, particularly since the increase in allotments is greater in the less mechanized areas. Even in these areas, however, further adoption of labor-saving methods of cultivation and weed control and wider use of mechanical harvesters could reduce the effect of greater acreage on the demand for cotton workers.

The supply of qualified year-round farmworkers continues to be tight. During the winter and early spring of 1960-61, the number of workers available for seasonal farmwork has been adequate for the limited number of jobs open in the slack season. If substantial nonfarm unemployment continues into the busier agricultural season, it will increase the number of workers willing to take farm jobs. Many unemployed industrial workers, however, are not experienced and others may not be interested in farmwork. In addition, many of them do not live in areas where farm jobs are available.

In 1960, about 335,000 foreign workers were contracted or admitted for seasonal farmwork, according to reports of the U. S. Department of Labor. This number was 27 percent below the 1959 level. In September 1960, during peak employment, foreign workers constituted 8.7 percent of all hired farmworkers compared with 10.6 percent in 1959. Greater mechanization, particularly of cotton harvesting, availability of more workers from domestic sources, and adverse weather and other seasonal factors accounted for the cutback in use of foreign workers. They will be available for seasonal farmwork this year in areas certified as having an insufficient supply of workers from domestic sources.

FARM POWER AND MACHINERY

Farmers paid slightly higher prices for new machinery and for gasoline in 1960 than a year earlier, but prices paid for motor vehicles, tires, and diesel fuel were somewhat lower. Wholesale prices of new farm machinery increased 2 percent, but prices farmers paid for machinery and motor supplies were up only about 1 percent, and prices of new motor vehicles were down more than 1 percent (table 2). In 1960, farmers' expenditures for machinery were somewhat lower than in 1959. Net income per farm in 1959 and 1960 also was substantially below that of 1958, and the drop probably affected considerably farmers' decisions to purchase equipment and supplies in 1960.

Table 2.- Power and machinery: Prices, repair, and operation of motor vehicles, and value of manufacturers' shipments of farm machinery and equipment, United States, 1940-60

Year	Index of prices paid by farmers, 1947-49=100						Farmers' expenditures for repair and operation of motor vehicles 6/	Index, 1947-49=100	
	New farm machinery	New motor vehicles 1/	Gasoline 2/	Diesel fuel 3/	Tires 4/	All motor supplies 5/		Value of domestic shipments of farm machinery 7/	Wholesale prices of tractors, farm machinery, and equipment 8/
							Mil. dol.		
1940	64	56	74	60	73	71	229	---	68.9
1945	74	75	81	65	104	82	497	60	72.9
1946	76	77	83	68	105	84	536	69	78.1
1947	86	90	92	85	101	92	635	89	90.3
1948	101	100	103	108	101	103	729	107	101.4
1949	113	110	105	106	98	105	746	104	108.3
1950	115	110	106	109	110	106	767	104	110.7
1951	124	118	107	112	131	111	914	118	120.1
1952	129	123	109	112	126	112	998	101	121.6
1953	130	122	111	115	122	114	988	93	122.3
1954	130	123	113	118	122	116	941	77	122.2
1955	131	122	114	118	120	117	993	85	123.2
1956	135	127	117	121	119	119	1,161	71	127.6
1957	142	136	123	124	116	124	1,265	73	133.5
1958	148	142	121	120	112	123	1,296	83	139.0
1959	156	147	123	122	106	124	1,369	86	143.4
1960 9/	160	145	126	119	103	125	1,352	60	146.1

1/ Includes tractors, automobiles, and motortrucks. 2/ Gasoline, average price 1947-49, tank truck $0.219 gal. 3/ Diesel fuel, 1947-49 average price, $0.136 per gal. 4/ Tires, 1947-49 average price, size 6:70 x 15, $18.70 each. 5/ Includes fuel, oil, grease, tires, tubes, batteries, and spark plugs. 6/ Operating costs exclusive of gasoline and oil (for automobiles in period 1942-45, 50 percent of costs, 40 percent thereafter). 7/ Based on data published in Current Industrial Reports, U. S. Bureau of the Census, values at 1947-49 prices. Includes tractors, farm machinery, and equipment; excludes garden tractors, motortrucks, automobiles, and attachments and parts for tractors. 8/ Bureau of Labor Statistics, U. S. Dept. of Labor. 9/ Preliminary.

Table 3.- Production of wheel tractors, estimated average maximum belt horsepower and percentage distribution, by type of fuel, specified years 1940 to 1960, United States 1/

Year	Production	Average maximum belt horsepower	Fuel type		
			Gasoline	Diesel	Liquefied petroleum gas
	Thousands	Horsepower	Percent	Percent	Percent
1940	249	26	2/	2/	2/
1945	244	27	2/	2/	2/
1950	497	29	2/	2/	2/
1951	564	29	2/	2/	2/
1952	415	31	94	6	3/
1953	390	35	93	6	1
1954	246	39	87	11	2
1955	330	40	84	13	3
1956	215	40	82	13	5
1957	229	45	78	16	6
1958	241	46	72	23	5
1959	260	46	65	30	5
1960	146	48	54	42	4

1/ From annual reports of the U. S. Bureau of the Census and the December monthly report for 1960 (M Series "Facts for Industry" through 1958; "Current Industrial Reports" 1959 and 1960).

2/ Not available.

3/ Included with gasoline.

Domestic shipments of new farm machinery were far below those of 1959 and the lowest in 15 years (table 2). Production of tractors declined still more (table 3). Inventories of wheel tractors in the hands of manufacturers and dealers declined from 180,000 in January to less than 130,000 units in December 1960.

Generally, since 1951, prices that farmers received for their products have declined, while the prices they paid for machinery and equipment have risen (fig. 1). This gap was even more pronounced from 1958 to 1960. Farmers paid 7 percent more for machinery and received 5 percent less for their products in 1960 than in 1958.

Prices paid for motor vehicles declined 1 percent from 1959 to 1960 following the 3-percent rise from 1958 to 1959. Lower prices in 1960 resulted largely from lower prices of automobiles following the increase in sales of smaller cars. Dealers' inventories of automobiles were near or at an all-time

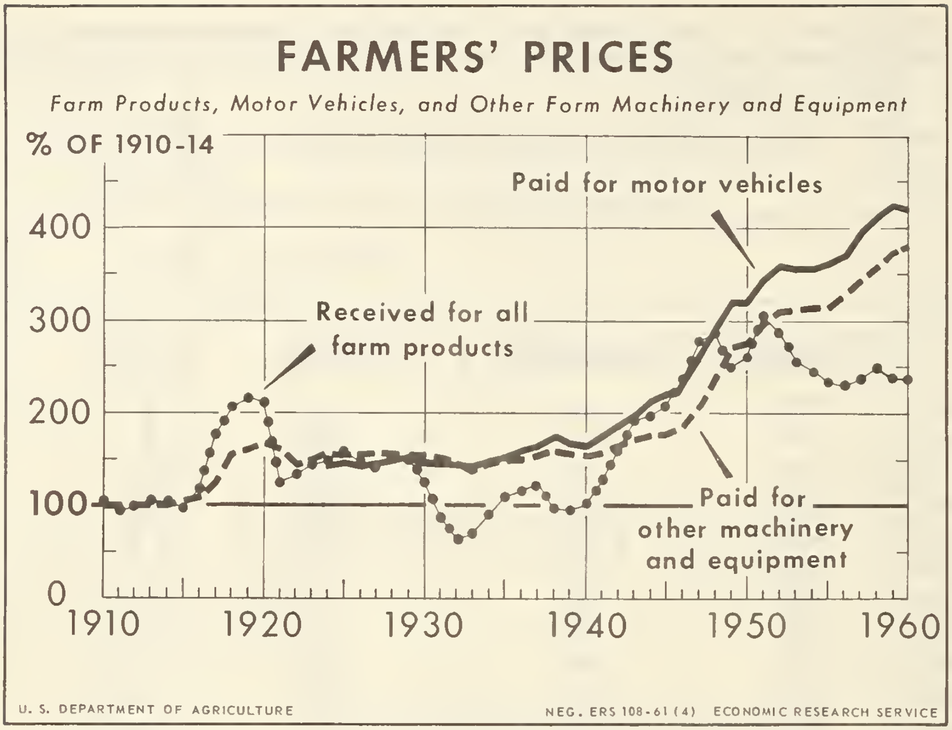

Figure 1

high during the last 2 years. As of January 1961, new cars were priced 9 to 11 percent lower than in the same period of the previous year. Prices of tractors declined slightly -- less than 1 percent from December 1959 to December 1960.

Wheel tractor production has changed from predominantly gasoline tractors a few years ago to more than 40 percent diesel tractors last year. In 1952, 94 percent of the wheel tractors produced were gasoline units and 6 percent were diesels. By 1960, production of gasoline tractors had fallen to 54 percent of the total manufactured, and diesels increased to 42 percent. Several factors account for the increase in production of diesels: (1) The price margin between diesels and gasoline units of similar size has narrowed considerably in recent years; (2) production of lower horsepower diesel tractors has made them useful to more farmers; and (3) savings have been affected by using diesel fuel instead of gasoline -- more work can be obtained from a gallon of diesel fuel, and it costs less per gallon than gasoline.

Prices paid for automobile tires have dropped steadily since 1954. In 1960, the index was 16 percent lower than in 1954, and 3 percent below 1959. Competition, technology, and change in wheel sizes have all had an impact on lowering tire prices. Prior to 1951, most of the automobile tires produced were for 16-inch wheels. Manufacturers began to reduce wheel sizes about 1951-52, with the first change to 15-inch wheels, later to 14-inch; more recently, some compact cars are being manufactured with 13-inch wheels.

The price of gasoline bought by farmers has risen steadily since 1940 (table 2). In 1960, farmers paid 18 percent more for gasoline delivered to the farm than in 1951, and 2 percent more than in 1959. Much of this increase in the price of gasoline resulted from higher State and Federal taxes; however, most of the tax on gasoline used on farms is rebated to farmers. State and Federal taxes on gasoline currently average about 10 cents a gallon. Since January 1, 1956, farmers have been able to obtain a rebate of the Federal tax on gasoline used for off-highway purposes. This tax is now 4 cents per gallon.

FEED

Of particular importance in the outlook for feed costs is the program for 1961 feed grains passed by the Congress and signed into law by the President on March 22. Under this program, producers of corn and grain sorghums must divert at least 20 percent of their corn and grain sorghum acreage to soil-conserving uses in order to be eligible for price supports for 1961-crop feed grains. Payments will be made to participating farmers for the diverted land.

Price supports for feed grains produced in 1961 are: Corn, average for all grades, $1.20 per bushel; oats, No. 3, $0.62 per bushel; barley, No. 2 or better, $0.93 per bushel; sorghum grain, No. 2 or better, $1.93 per cwt.; rye, No. 2 or better (or No. 3 on test weight only), $1.02 per bushel.

As the program was enacted after the March 1 survey of farmers' intentions to plant was made, its effect on planted acreage was not reflected. On March 1, however, farmers indicated that they would plant smaller acreages of corn, grain sorghum, and barley, and a slightly larger acreage of oats than in 1960. Extensive participation in the feed grain program would cause further reductions in acreages of corn and grain sorghum.

The carryover of feed grains (corn, sorghum grains, oats, and barley) into the 1961-62 feeding year (beginning October 1, 1961) is expected to be about 85 million tons, 10 million more than in 1960-61.

With the probability of a smaller supply of feed grains and more livestock on farms, the quantity of feed grains per animal unit will be somewhat lower in 1961-62 than a year earlier. The number of grain-consuming animal units 1/ in the 1960-61 period was estimated at approximately 166 million (based on revised estimates of numbers of livestock and poultry). This estimate reflected increases in numbers of both cattle on feed and poultry, and a sizable decrease -- a little more than 2 million animal units -- in the number of hogs produced. The total number of grain-consuming animal units in the 1961-62 feeding year is expected to increase to around 170 million, mainly because of an increase in the number of hogs.

About 68.7 million acres of hay will be harvested in 1961, 1 percent less than in 1960. This is a continuation of the general downward trend in

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1/ Numbers weighted by concentrates consumed.

acreage of the last few years. If 1956-60 average yields are realized in 1961, a crop of about 113 million tons would be expected. This is 8 million tons less than the 1960 crop and slightly below the 1955-59 average.

The number of roughage-consuming animal units of livestock 2/ in 1961-62 is expected to increase slightly to 95.7 million; this is 0.3 million more than in 1960-61. Increases are expected in numbers of sheep, goats, and beef animals, but decreases are expected in numbers of milk cows and poultry.

The 1961-62 supplies of high-protein and other byproduct feeds probably will equal and may exceed the 27.3 million tons estimated for 1960-61. The larger soybean acreage in prospect for 1961 would result in more soybeans available for processing than in 1960-61. The quantity of soybean meal available for feeding, however, would depend also upon the demand for soybean oil and the quantity of soybeans and soybean meal exported. Supplies of tankage and meat meal probably will increase in 1961-62 as greater slaughter of livestock is in prospect.

Prices of most feeds declined in the last half of March and in April, after advancing more than seasonally from November to February and early March. The March 15 prices received by farmers for the four feed grains averaged 13 percent higher than in November and close to the level of a year earlier. From March 15 to April 15, however, prices of corn dropped nearly 5 cents a bushel, oats and barley 1 cent per bushel each, and sorghum grain 4 cents a hundredweight. On April 15, prices of feed grains, except barley, were 5 to 15 percent lower than a year earlier (table 4).

Because of low prices during the fall and winter, a record volume of corn was placed under price support from November to February. The resulting reduction in "free" supplies of corn, along with a generally good demand for livestock feeds, strengthened prices of corn during the winter. Prospects for, and enactment into law of, the 1961 Feed Grain Program, providing for higher supports on corn and other feed grains, have also influenced feed prices in recent months.

Prices of high-protein feeds have risen very sharply since last fall. Price increases for soybean meal have been especially pronounced. Farmers paid an average of $87.40 per ton for soybean meal on March 15, and $92.60 per ton on April 15. These prices compare with $79.20 on October 15, 1960. Prices of meat meal and tankage have advanced substantially since last fall. Prices of the high-protein feeds probably will continue to be somewhat higher this spring and summer than in the same period of 1960, although prices of some of these feeds may recede from the current high level. The market for protein feeds is expected to be considerably stronger through the summer than in 1960, when average prices for high-protein feeds declined 12 percent from January to August.

2/ Numbers weighted by roughages consumed.

Table 4. - Average prices of feed in the United States, Apr. 15, 1959-61

Item	Unit	1959	1960	1961	Percentage change 1960 to 1961
		Dollars	Dollars	Dollars	Percent
Prices received by farmers:					
Corn	Bu.	1.13	1.05	0.965	-8
Oats	Bu.	.60	.68	.58	-15
Barley	Bu.	.90	.84	.84	0
Sorghum grain	Cwt.	1.80	1.55	1.48	-5
Hay, baled	Ton	18.80	22.50	20.00	-11
Prices paid by farmers:					
Mixed dairy feed, 16 percent protein	Cwt.	3.74	3.68	3.66	-1
Laying mash	Cwt.	4.52	4.38	4.37	0
Broiler mash	Cwt.	4.93	4.69	4.66	-1
Cottonseed meal	Cwt.	4.26	4.08	4.01	-2
Soybean meal	Cwt.	4.26	4.16	4.63	11
Bran	Cwt.	3.13	3.05	2.95	-3
Middlings	Cwt.	3.21	3.08	2.99	-3
Alfalfa hay, baled	Ton	29.50	33.10	31.50	-5
Average value of concentrate ration fed to - 1/					
Poultry	Cwt.	3.44	3.40	3.34	-2
Milk cows in milk-selling areas	Cwt.	2.96	2.96	2.92	-1
Milk cows in cream-selling areas	Cwt.	2.40	2.44	2.37	-3

1/ Value of corn, oats, oilmeal, millfeed, commercial mixed feed, and other feeds, which make up 100 lbs. of "grain" ration.

Because of the wide difference in prices of different kinds of high-protein feeds in some areas, livestock feeders may obtain substantial savings by substituting lower-priced proteins for high-priced feed.

Estimated gross returns per dollar of feed cost generally were higher on April 15, 1961, than a year earlier. Increases in returns of 9 percent were obtained for milk, 14 percent for butterfat, 16 percent for hogs, and 5 percent for beef raising. Returns were 7 percent lower for eggs and broilers, 18 percent lower for turkeys, and 5 percent lower for sheep raising (table 5).

Table 5. - Gross returns from livestock enterprises per $1.00 of feed cost, United States, based on April 15 prices, 1947-56 average and 1959-61 1/

Livestock enterprise or product	Gross return per $1.00 of feed cost: Average, 1947-56	1959	1960	1961	Percentage change 1960 to 1961
	Dollars	Dollars	Dollars	Dollars	Percent
Eggs	1.44	1.17	1.53	1.43	-7
Broilers	1.57	1.18	1.33	1.24	-7
Turkeys	1.75	1.37	1.70	1.39	-18
Milk	1.72	2.01	1.83	1.99	9
Butterfat	1.36	1.51	1.32	1.50	14
Hogs	1.59	1.66	1.78	2.07	16
Sheep raising	1.53	1.48	1.36	1.29	-5
Beef raising	1.81	2.68	2.20	2.31	5
	Index numbers (1947-56=100)				
Eggs	100	81	106	99	---
Broilers	100	75	85	79	---
Turkeys	100	78	97	79	---
Milk	100	117	106	116	---
Butterfat	100	111	97	110	---
Hogs	100	104	112	130	---
Sheep raising	100	97	89	84	---
Beef raising	100	148	122	128	---

1/ The following quantities of feed were used to calculate the cost of feed:

Eggs (per dozen)------------------7 lbs. poultry ration
Broilers (per lb.)----------------2.6 lbs. broiler mash
Turkeys (per lb.)-----------------4.75 lbs. poultry ration
Milk (per cwt.)-------------------31 lbs. concentrates and 110 lbs. hay
Butterfat (per lb.)---------------7.75 lbs. concentrates and 27 lbs. hay
Hogs (per cwt.)-------------------7.5 bu. corn and 20 lbs. soybean meal
Sheep and lambs (per cwt.)--------2 bu. corn and 1,500 lbs. hay
Beef raising (per cwt.)-----------3 bu. corn and 600 lbs. hay

To estimate costs of all harvested forages and pasture in the above quantities of feed, feeds from these sources were converted into hay equivalent and the price received by farmers for "all hay" was applied. Feed nutrients from pasture were assumed to cost one-fourth as much as the nutrients in hay. About one-third of the feed consumed by sheep is used in the production of wool. During the period 1947-61, quantities of broiler mash used to calculate broiler feed costs were: 1947-49, 4 pounds; 1950-52, 3 1/2 pounds; 1953-54, 3 1/4 pounds; 1955-56, 3 pounds; 1957-60, 2.8 pounds; 1961, 2.6 pounds. From 1947-50, 5.5 pounds of poultry ration were used to calculate the cost of rations for turkeys. Basic data on amounts of feed fed are from Consumption of Feed by Livestock, 1909-56, U. S. Dept. Agr. Prod. Res. Rpt. 21, 128 pp., illus. 1958.

LIVESTOCK

Prices paid by farmers for feeders and replacement livestock rose 11 percent from October 1960 to April 1961. Changes ranged from practically none for lambs and feeder pigs to 35 percent higher for baby chicks; prices paid for feeder and stocker cattle and calves rose 8 percent (table 6).

Table 6. - Prices paid by farmers for replacement livestock, 1960 and 1961 1/

Class	Apr. 15, 1960	Oct. 15, 1960	Dec. 15, 1960	Apr. 15, 1961
	Dollars	Dollars	Dollars	Dollars
Feeders and stockers:				
Cattle and calves per cwt.	25.60	22.00	24.00	23.70
Lambs per cwt.	20.40	16.30	16.80	16.20
Hogs per cwt.	16.70	18.10	17.40	18.20
Baby chicks, straight run, per 100	14.70	13.40	14.10	18.10
Turkey poults each	.627	.555	.569	.626
Index, 1947-49=100	113	98	106	109

1/ From U. S. Statis. Rptg. Serv., Agricultural Prices.

Prices paid for stocker and feeder cattle rose quite sharply from October to December and have since risen only slightly from the December level. In March, prices paid for all weights of stockers and feeders at Kansas City averaged $24.50 per hundredweight. They were only slightly lower this spring than a year ago.

Although prices of feeders usually rise from fall to spring, the sharp increase in the early winter may have been a result, partly at least, of indications then being published that the number of cattle and calves on farms and ranches was not as large as earlier reports had indicated. The preliminary estimate of the number of all cattle on January 1, 1960, was revised downward by 5 percent. With a smaller number of cattle on farms, the outlook for cattle prices became more favorable.

Despite the downward revision in estimated inventories, the number of cattle on farms January 1, 1961, was at a record high. The number of cattle and calves on feed was also at a record high. However, because of lower prices paid for replacements in 1960, farmers' expenditures for feeders were lower than in 1959.

The ratios of prices received for meat animals to prices paid for replacement livestock and feed were about the same this spring as they were a year ago (table 7). Compared with last fall, these ratios were less favorable this spring. Prices of all three groups of items were higher this spring, but prices of replacement livestock rose the most.

Table 7. - Index numbers: Prices received for meat animals and prices paid for selected production items, 1960 and 1961

(1947-49=100)

Class	April 1960	October 1960	December 1960	April 1961
Prices received for meat animals	93	86	89	91
Prices paid for replacement and feeder livestock	113	98	106	109
Ratio of prices received to prices paid	82	88	84	83
Prices paid for feed	86	83	82	84
Prices paid for all production items, interest, taxes, and wage rates	122	118	119	122

Prices of fat cattle in 1961 are expected to average about the same as in 1960. Prices are expected to be relatively stable this year, although prices received probably will be lowest next fall when many of the cattle bought this spring will be returning to market. With price margins usually narrower for cattle bought in the spring compared with those bought at other times of the year (fig. 2), only farmers who produce beef at minimum feed and labor costs can expect to earn satisfactory returns on capital and labor from cattle bought this spring.

Since 1940, annual average prices of Choice fed steers at Chicago were $4.67 a hundredweight, or 25 percent above the prices of stocker and feeder steers at Kansas City a year earlier (fig. 3). In 1959 and 1960, however, this margin narrowed to $2.27 and $0.63, respectively; in the last 20 years, the margin has been wider in each year except 3. Even in 1941, when fat steer prices averaged $9.95 a hundredweight, the lowest in the last 20 years, the margin was $2.81.

With larger feedlot operations, overhead costs are lower and narrower margins may be expected. Livestock-feed price ratios have been relatively favorable, thus permitting higher prices for feeder cattle than would have been possible with higher feed costs. Also, with a larger proportion of cattle fed in the commercial feedlots of the West and Southwest, the average

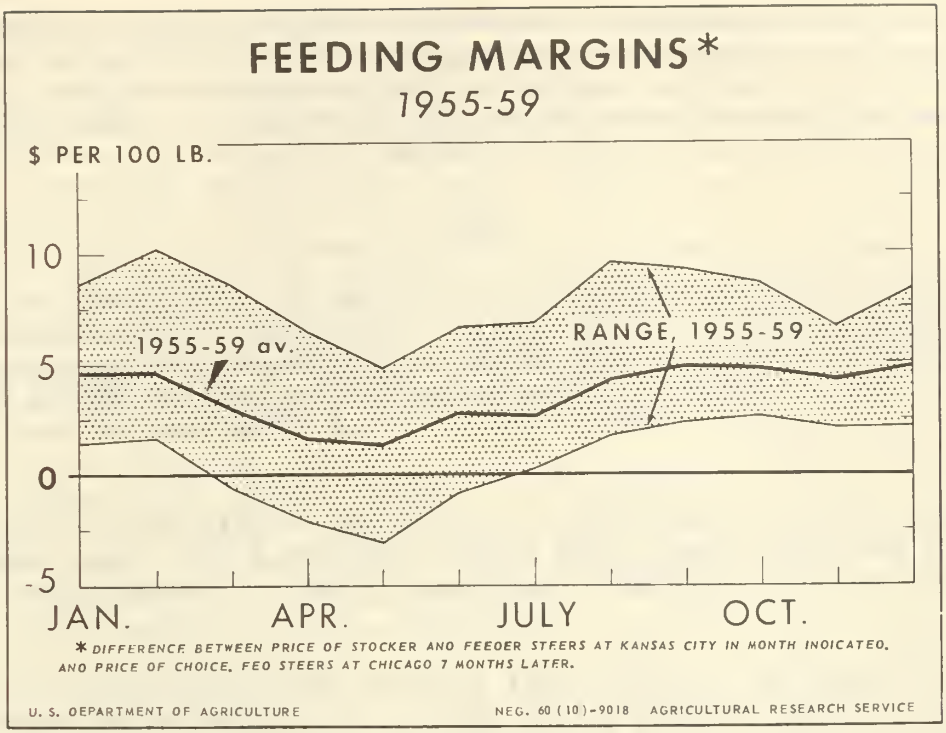


Figure 2

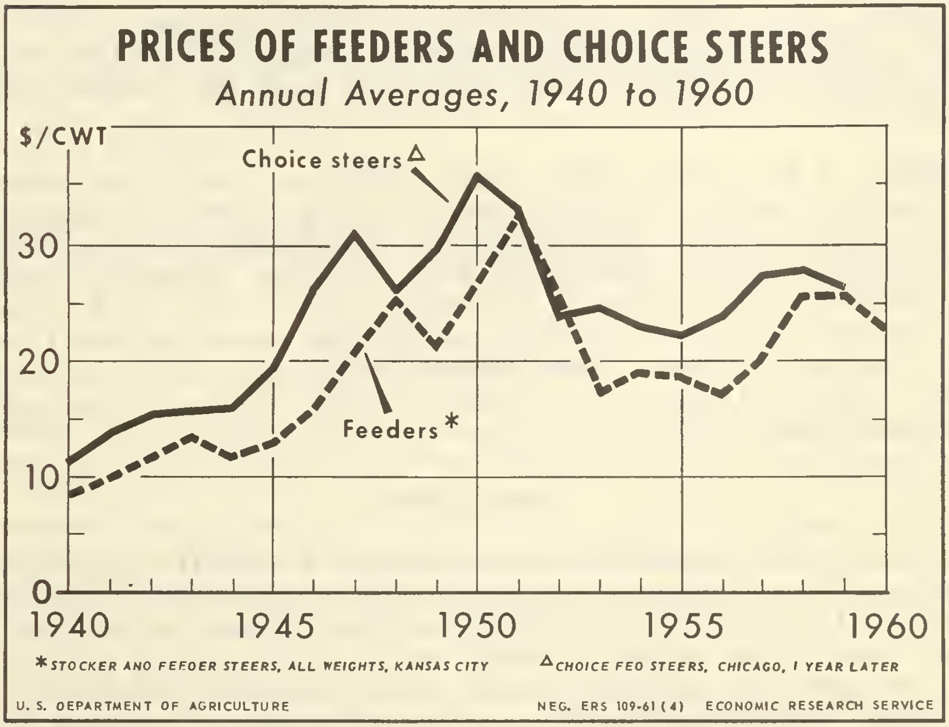


Figure 3

elapsed time between purchase of feeders and sale of slaughter cattle is shorter; thus, comparisons of feeder prices with fat cattle prices a year later may be less valid than they were in earlier years. It isn't likely, though, that margins will shrink as rapidly as a result of these changes or that they will remain as narrow as in the last 2 years.

SEED

Prices reported in mid-April of this year for field seeds averaged only 1 percent lower than a year earlier. Prices were lower, however, for 21 of 30 kinds of seeds for which prices were obtained. For most seeds, prices varied less than 10 percent from the average prices paid by farmers in February through May for the last 3 years. But prices of a few kinds of seeds have changed considerably.

Retail prices in mid-April for Korean and striate Kobe lespedeza were about 50 to 60 percent higher than at the same time a year ago. Prices of white clover and sudan seed also rose about 15 percent above prices last spring.

Lower prices in mid-April were reported for tall fescue, smooth brome, and timothy -- about 30 percent lower than in the corresponding period of last year. Reductions of 10 to 20 percent were reported for red clover, sweet clover, red top, common rye, and Kentucky bluegrass.

Prices of seed potatoes in mid-April of this year were $0.80 per 100 pounds below those at the same time last year, but prices of soybean and cottonseed increased about $0.70 per bushel and $0.70 per hundredweight, respectively.

Supplies of most hay, grain, grass, and other field-crop seeds for spring and summer planting this year seem adequate to meet the domestic demand. But a few kinds of grass seeds may be in short supply. The domestic supply of lespedeza seed on January 1, 1961, was down 27 percent from the same date last year and 34 percent from the average of the last 3 years. Compared with the quantities available in previous years and total disappearance, supplies of orchard grass, smooth brome, and crested wheatgrass are lower also. However, imports this spring for some of these seeds may alleviate their short positions.

FERTILIZER

Increased use of fertilizer has accompanied general improvements in farm technology. Consumption of principal plant nutrients for the year ending June 30, 1961, is expected to exceed slightly the record high of 7.4 million tons used in the preceding year; prices have remained about the same. As the general level of management rises, yield response to fertilizer is enhanced. Also, as other production costs rise relative to prices of fertilizer, the use of fertilizer becomes more profitable. Therefore, the incentive continues for increased use of fertilizer, along with other improved technology.

Changes in use of fertilizer based on census data for 1954 and 1959 can be reported for a few important producing areas. For example, in central Indiana and southwestern Ohio, application of plant nutrients per acre increased about 30 percent for corn, 9 percent for wheat, and 35 percent for hay and cropland pasture. Farther west in south-central Iowa and north-central and northeastern Missouri, application of plant nutrients per acre increased 17 percent for corn, and 7 percent for hay and cropland pasture, but remained unchanged for wheat. In northwestern Iowa and southwestern Minnesota, the increase for corn was about 38 percent. For hay and cropland pasture, the estimated rate per acre in 1959 was nearly twice that of 1954. Complete comparisons for all important producing areas are not yet available from work now in progress, but the evidence indicates that in commercial farming areas, farmers are continuing to increase use of fertilizer.

The index of prices paid by farmers for fertilizer last fall was about 107 percent of the 1947-49 average. It changed very little in the spring of 1961. These index numbers reflect only changes in prices of specific kinds of fertilizer, whereas consumption of higher analysis fertilizers has become increasingly more common. Official estimates of expenditures for fertilizer and tons of plant nutrients consumed show that the cost of plant nutrients was only about $1.00 per ton more, or 1 percent higher, in 1959 than in 1947-49. The latter change reflects more adequately the effect of the increased nutrient content of fertilizers, which has been a factor in holding fertilizer costs to farmers relatively low compared with changes in costs of other inputs.

Fertilizer plant capacity has continued to expand, and supplies of plant nutrients are expected to be about 4 percent greater for the year ending June 30, 1961, than for the preceding year. This increase is about equally divided among the three principal plant nutrients, nitrogen (N), phosphoric oxide (P_2O_5), and potash (K_2O). The capacity of anhydrous ammonia plants continues to grow.

Completion of six new plants will increase capacity for production of nitrogen about 453,000 tons per year. Expansion of existing facilities now underway will add another 160,000 tons to annual productive capacity.

BUILDING MATERIALS

In April 1961, the index of prices paid for building and fencing materials was 132 (1947-49=100), and has remained essentially unchanged since early 1959. This is the longest period in the last two decades in which the index has remained stable except for the 3-year period 1952-54, when it remained at 118. In 1955, the index began moving upward again until 1959, when it leveled off at 133. The price index is expected to remain near its present level in the remaining months of 1961.

For farmers who perform most of the work in farm construction, building costs in 1961 should be nearly the same as in the last 2 years. However, if the construction is performed by contractors or if the bulk of the labor is hired, costs could be higher in areas in which wage rates are rising; they might possibly be lower, however, in areas of substantial unemployment with consequent downward pressure on wage rates.

PESTICIDES

Manufacturers' prices of most pesticidal chemicals are unchanged from last season. Copper chemicals moved down slightly in response to fluctuations in the price of copper metal. Prices of endrin and methyl bromide were adjusted upward slightly while the price of lindane recently underwent a small reduction.

In 1960, sales of pesticidal chemicals were up an estimated 3 percent over 1959. At the primary manufacturers' level, they amounted to $285 million. Sales of insecticides were off somewhat while sales of herbicides were up 7 percent. Need for fungicides and herbicides was increased by cool, wet weather in 1960. Corn receives more weed killer than any other crop.

The regional distribution of insecticide and fungicide usage is indicated by census figures for this industry published in the 1958 Census of Manufactures as follows:

	Percent
New England States	1.2
Middle Atlantic States	5.4
North Central States	42.7
South Atlantic States	6.5
East South Central States	11.0
West South Central States	13.8
Mountain States	7.6
Pacific States	11.8
United States	100.0

FARM REAL ESTATE

Market prices of farm real estate strengthened slightly in the 4 months ended March 1, 1961, and offset most of the declines that had occurred in 1960. The national index of average value per acre advanced to 175 (1947-49=100), up 2 percent from last November but only 1 percent above March 1960. However, prices continued to weaken in the central Corn Belt States, although the declines in the latest 4-month period were less than those between July and November of 1960. Values this March were 6 percent lower than those of a year earlier in Iowa, 4 percent lower in Indiana, and 2 or 3 percent lower in Illinois, Ohio, and Minnesota (fig. 4). New York and West Virginia were the only additional States that showed significant declines during the last year.

Viewed in a longer time perspective, the strong upward trend in prices of farmland that had prevailed between 1954 and 1958 slowed perceptibly in 1959, and largely ceased in 1960. Although values are still moving upward

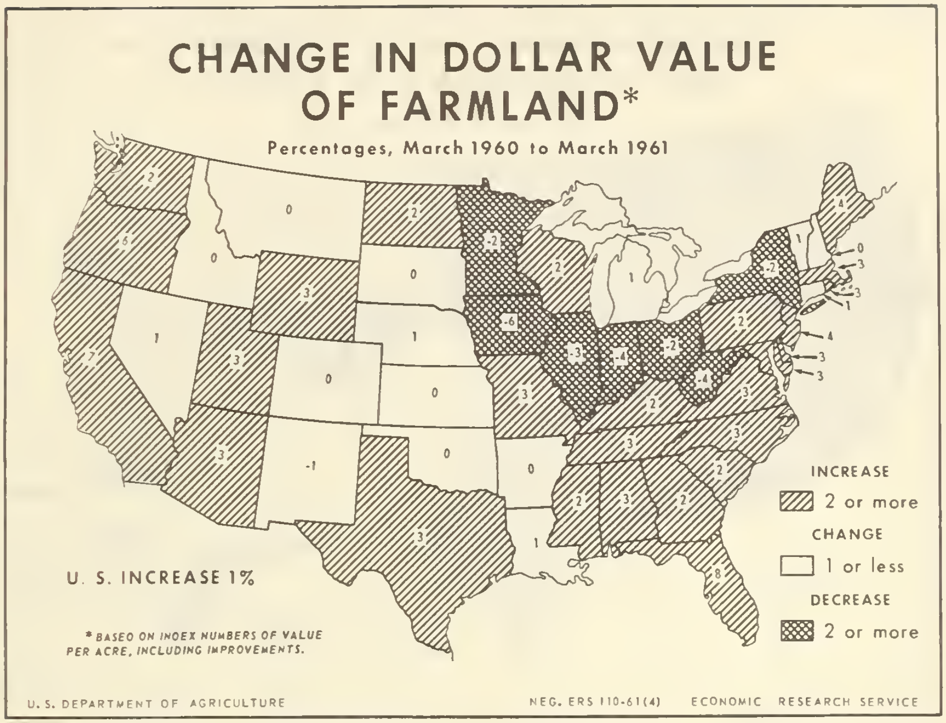

CHANGE IN DOLLAR VALUE OF FARMLAND*
Percentages, March 1960 to March 1961
U. S. INCREASE 1%
* BASED ON INDEX NUMBERS OF VALUE PER ACRE, INCLUDING IMPROVEMENTS.
INCREASE
▨ 2 or more
CHANGE
☐ 1 or less
DECREASE
▩ 2 or more
U. S. DEPARTMENT OF AGRICULTURE
NEG. ERS 110-61(4)
ECONOMIC RESEARCH SERVICE

Figure 4

fractionally, the rate of change is half or less of that occurring in previous years.

Reasons for the declines in the central Corn Belt are not readily apparent. However, a part of the weakness in the last half of 1960 can be attributed to uncertainties with respect to possible new farm programs. The number of farm transfers fell more sharply in this region than elsewhere, as prospective buyers tended to postpone purchases until the longer range outlook for farm prices and income became more certain. There are also indications that concern over further increases in farm real estate taxes and the expectation of lower interest rates on farm mortgages contributed to weaker demand.

Preliminary data from the 1959 Census of Agriculture provide new measures of the increases in dollar values of farm real estate since 1954, and of average values per farm as of the fall of 1959. These latter estimates reflect the combined effects of the increases in average size of farm and prices per acre on total capital investment. The average value per farm for 48 States (excluding Alaska and Hawaii) was $33,200, or 63 percent more than in 1954. Average size of farm increased from 242 to 302 acres, or 25 percent, and the average value per acre from $84 to $121 (44 percent).

The average value of land and buildings per farm ranged from a low of $10,000 in West Virginia to a high of $174,000 in Arizona (fig. 5). Investments of $40,000 or more prevailed in most of the Corn Belt, Plains, Mountain, and Pacific States. In the Southeast, farms averaged less than $15,000 in

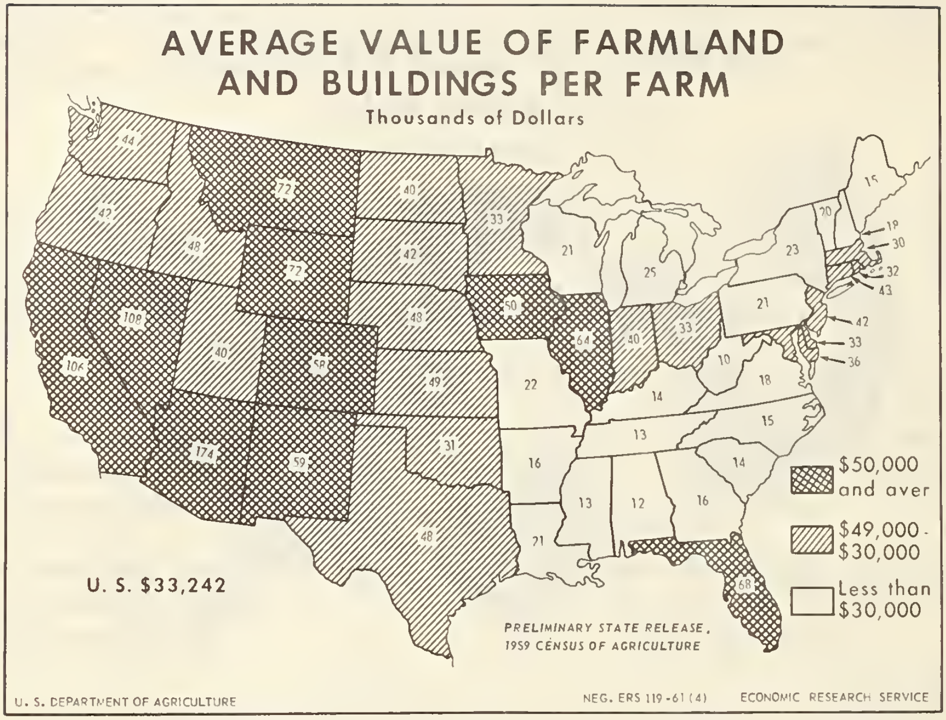


Figure 5

most States because of smaller acreages and lower values per acre. However, values per farm in this region have increased substantially more since 1954 than in other regions of the country because of the larger increases in both value per acre and acres per farm.

Cash Rents

Changes in cash rental rates were relatively small between 1960 and 1961 in most of the North Central States, although they averaged a little higher for the region as a whole. In general, rents followed the upward trend in land values, so that the ratio of gross rent to value remained relatively constant. However, the increase in farm real estate taxes and increasing costs of maintaining buildings and other permanent improvements tended to reduce the net rental returns as a percentage of market value.

Cash rents per acre for whole farms ranged from a high of $20.75 per acre in Illinois to a low of $4.55 in North Dakota (table 8). In relation to value, however, rents were lowest in Illinois, and highest where land values were relatively low. An equally wide range prevailed with respect to pastureland rented on a per acre basis, although the level of rents was about half that for whole farms (table 9). Rent-to-value ratios tended to be a little lower for pastureland than for whole farms because the owner's expenses were lower.

Table 8. - Cash rent per acre for farms rented wholly for cash, and ratio of gross cash rent to value, Corn Belt, Lake States, and Northern Plains, Apr. 1, 1958-61 1/

State	Cash rent per acre				Ratio of gross rent to value			
	1958	1959	1960	1961	1958	1959	1960	1961
	Dollars	Dollars	Dollars	Dollars	Percent	Percent	Percent	Percent
Ohio----------	12.30	12.65	12.55	13.15	5.8	5.6	5.5	5.8
Indiana-------	15.75	17.70	18.10	18.25	6.5	7.0	6.7	7.0
Illinois------	20.05	19.45	20.55	20.75	6.1	5.3	5.4	5.7
Iowa----------	16.10	16.80	17.40	17.10	6.3	6.2	6.2	6.5
Missouri------	8.10	10.00	9.00	9.95	6.9	7.8	7.3	7.5
Michigan------	11.10	11.80	12.60	12.45	6.2	6.0	6.4	6.0
Wisconsin-----	12.25	12.65	13.60	12.90	8.3	8.6	8.7	8.1
Minnesota-----	12.05	13.35	13.45	13.65	6.9	7.0	7.1	7.2
North Dakota--	3.85	4.55	4.75	4.55	8.6	9.1	8.9	8.4
South Dakota--	4.80	5.15	5.20	5.70	7.3	6.8	7.1	7.3
Nebraska------	7.53	7.90	7.40	8.05	6.7	7.0	6.1	6.5
Kansas--------	6.45	6.90	7.25	7.10	6.4	6.7	6.5	6.0

1/ Estimates supplied by crop reporters.

Table 9. - Cash rent per acre for pastureland and ratio of gross rent to value, Corn Belt, Lake States, and Northern Plains, Apr. 1, 1958-61 1/

State	Cash rent per acre				Ratio of gross rent to value			
	1958	1959	1960	1961	1958	1959	1960	1961
	Dollars	Dollars	Dollars	Dollars	Percent	Percent	Percent	Percent
Ohio----------	6.65	6.80	7.00	7.00	5.2	5.0	5.0	4.9
Indiana-------	7.60	8.45	8.75	9.40	4.4	4.9	4.7	5.1
Illinois------	8.50	8.30	8.80	8.20	3.7	3.7	3.6	3.7
Iowa----------	8.95	9.35	9.20	9.10	5.3	5.2	5.2	5.4
Missouri------	5.30	5.70	5.40	6.10	6.4	6.4	5.9	6.1
Michigan------	4.05	4.65	5.05	4.60	5.6	6.0	6.3	5.6
Wisconsin-----	5.15	5.30	6.05	5.55	8.5	8.6	9.1	8.3
Minnesota-----	5.95	5.80	6.30	6.40	6.8	6.6	7.0	7.3
North Dakota--	1.45	1.70	1.75	1.80	5.6	6.2	5.9	5.9
South Dakota--	1.95	2.15	2.30	2.65	5.4	5.3	5.5	6.0
Nebraska------	4.10	4.05	4.15	4.15	6.1	5.8	5.8	5.8
Kansas--------	3.45	3.45	3.50	3.25	5.4	5.1	5.0	4.9

1/ Estimates supplied by crop reporters.

Table 10. - Average rate per head per month for pasturing cattle on privately-owned land, 1960 and 1961 seasons, by farm-production regions 1/

Region	Rate per head		Region	Rate per head	
	1960	1961		1960	1961
	Dollars	Dollars		Dollars	Dollars
Northeast 2/	2.60	2.50	Delta States	1.20	1.10
Lake States	1.80	1.80	Southern Plains	2.20	2.20
Corn Belt	2.20	2.25	Mountain	3.00	3.05
Northern Plains	3.00	3.00	Pacific	3.60	3.70
Appalachian	2.15	2.10			
Southeast	1.65	1.75	United States 3/	2.80	2.80

1/ Estimates supplied by crop reporters, U. S. Agricultural Marketing Service, as of April 1.

2/ Includes only N. Y., Pa., N. J., Del., and Md.

3/ Based on 42 States.

Rental rates for pasturing cattle on a per head basis changed little in the last several years. For 1961, they will average $2.80 per head per month and range from a low of $1.10 in the Delta States to a high of $3.70 in the Pacific States (table 10). In some areas, rental charges for pasture are based on the number of pounds gained.

INTEREST

Interest rates paid by farmers on new loans declined during 1960 and will probably stay at a reduced level during 1961. Interest rates in the money market declined sharply from a peak in January 1960 to a low in late summer. Since August, money market rates have fluctuated but, in general, they have remained low relative to the level of recent years. The sharp decline in money market rates during 1960 is evidenced by the decline in yields of Federal land bank bonds and Federal intermediate credit bank debentures. A 4-year Federal land bank bond was issued in April 1960 to yield 4.39 percent per annum to investors, compared with a 4 3/4-year bond issued in April 1961 to yield only 3.90 percent. A 1-year Federal land bank bond was issued in June 1960 to yield 4.62 percent per annum to investors, in comparison with a 1 1/2-year bond issued in April 1961 to yield only 3.12 percent. Yields on 9-month Federal intermediate credit bank debentures decreased from 4.40 percent in April 1960 to 2.90 percent in April 1961.

Interest rates on new farm real estate loans in early 1961 eased off from the levels prevailing during most of 1960, and will probably average below 1960 for the rest of the year.

Since January 1, 1961, rates charged by 10 of the 12 Federal land banks were reduced by one-fourth to one-half of one percentage point. For eight of the banks, the lower rates were effective in the first quarter of 1961; for the other two banks they went into effect on the first of April. Nine of the land banks now charge 5 1/2 percent, one, 5 3/4 percent, and two still have a 6-percent rate. Interest rates charged by insurance companies in the first quarter of 1961 also declined from rates in the fourth quarter of 1960 and are not expected to decline much further during the rest of 1961.

Interest rates on new loans will average somewhat lower in 1961 than in 1960. The average rate on farm-mortgage debt outstanding will continue to increase, however, as loans obtained recently at higher interest rates are added to outstanding debt and as farmers reduce outstanding balances on loans obtained earlier at lower rates.

Interest charges on farm-mortgage indebtedness are expected to total about $680 million in 1961, compared with an estimated $640 million in 1960 and $580 million in 1959. Interest charges on farm-mortgage debt have increased faster than total farm production expenses. In 1961, they are expected to account for about 2.5 percent of total expenses, an increase of 0.3 percentage point from the share taken in 1959.

Interest rates charged by the production credit associations follow closely the rates established in the money market. Following a peak about April 1960, they declined during the rest of the year and into the first quarter of 1961. This trend is shown in the distribution of associations by rates charged as indicated in the following tabulation:

Rates (percent)	Apr. 1, 1960	Sept. 1, 1960	Jan. 1, 1961	Apr. 1, 1961
	Percent	Percent	Percent	Percent
5.0 to 5.9	0	2	4	6
6.0 to 6.9	37	47	74	79
7.0 to 7.9	56	47	21	14
8.0 to 8.9	7	4	1	1
Total	100	100	100	100

Bank rates in general respond sluggishly to changes in the central money market. In a survey just completed by the American Bankers Association, bankers reported little change in interest rates during the last 12 months. They also reported that while interest on farm loans is highest in the Southern Plains, this area reflected some decrease in rates from a year ago. The Corn Belt reported the lowest interest charges on both non-real-estate and real estate farm loans made by banks.

TAXES

Property taxes to be paid by farmers in 1961 will continue the upward trend of the last two decades. Taxes levied on farm real estate (land and buildings) and personal property (livestock, farm machinery, and so on) totaled $1.6 billion in 1960, a rise of 8 percent above those of 1959. For the most part, these levies are payable in the 1961 calendar year.

Farm real estate taxes levied in 1960 reached a record high of $1.3 billion compared with $1.2 billion in 1959. This increase of 8 percent pushed the average tax per acre to a new high of $1.20. The index of taxes levied rose 16 points over 1959, to a high of 214 (1946-48=100) in 1960.

With only a slight increase in the value of farm real estate, the marked rise in tax levies on this property pushed the tax-to-value relationship to $0.99 per $100 of full value as compared with $0.93 last year. This is the highest tax per $100 of full value recorded since the early forties, but is considerably lower than the record of $1.52 set in 1932.

Taxes levied on farm personal property totaled about $269.4 million in 1960 compared with $249.4 million in 1959.

The chief factor responsible for the rise in farm property taxes is the continued need of local governments for additional revenues to meet the higher costs of providing expanded services and upgrading the many functions these governmental units perform. In the calendar year 1960, State and local government purchases of goods and services totaled more than $47 billion, or more than 9 percent of the Nation's total production. In 1961, these expenditures are expected to increase by $3.5 billion. The rising expenditures of State and local governments will cause a further increase in farm property taxes.

COSTS BY TYPE OF FARM

In 1960, prices paid for all commodities and services purchased by operators of 32 types of commercial farms ranged from 7 percent below those of 1959 on egg-producing farms in New Jersey to 7 percent above those of 1959 on tobacco-cotton farms in North Carolina. The location of these types of farms is shown on the map in figure 6. On most types of farms, prices paid either remained unchanged from 1959 to 1960, or moved 1 to 2 percent higher (table 11).

On 23 of the 32 types of farms, prices paid were from 20 to 38 percent higher in 1960 than in 1947-49. Prices paid by operators of cash grain farms in the Corn Belt rose the most.

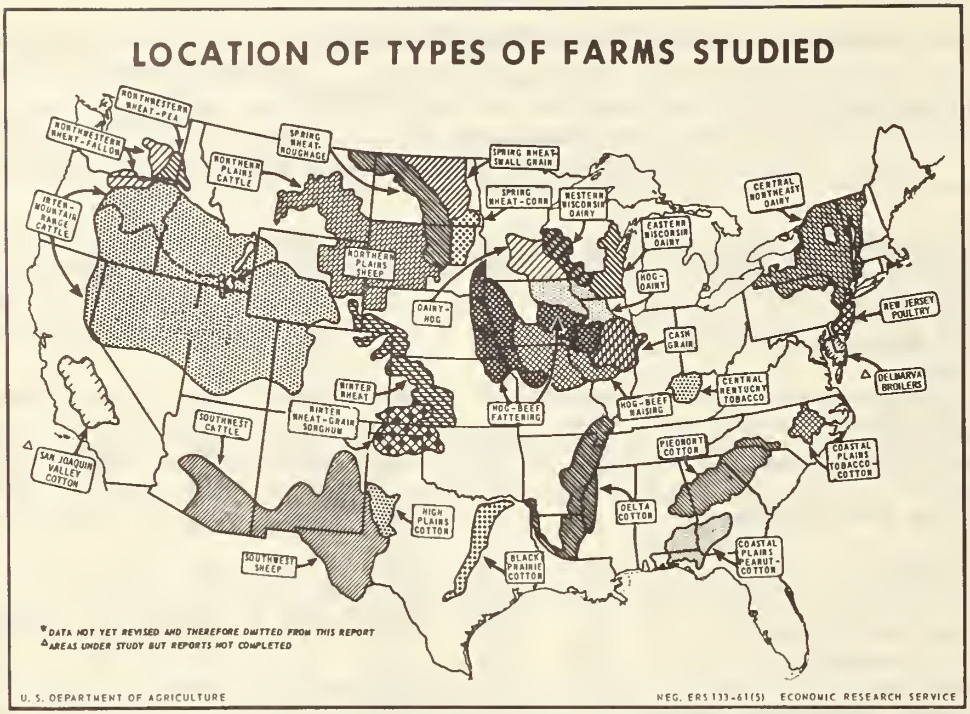
Changes in prices paid by farmers for goods and services used in production vary by commodities and by type of farm. In 1960, farm-produced items (feed, seed, and livestock) averaged about 8 percent lower than in 1947-49 and

Table 11. - Prices paid for goods and services used in production, specified types of commercial farms, 1959 and 1960 1/

(Index numbers 1947-49=100)

Type and location of farm	All goods and services		Hired labor		Feed, seed, and livestock		Other goods and services 2/	
	1959	1960 1/	1959	1960 1/	1959	1960 1/	1959	1960 1/
Dairy farms:								
Central Northeast	120	120	139	141	91	90	138	140
Eastern Wisconsin	120	123	137	139	84	84	133	135
Western Wisconsin	114	117	137	139	85	84	126	129
Dairy-hog farms:								
Southeastern Minnesota	125	127	136	136	88	87	138	142
Corn Belt farms:								
Hog-dairy	122	123	146	148	88	86	138	140
Hog-beef raising	125	126	141	144	89	87	140	142
Hog-beef fattening	131	129	144	147	129	125	135	137
Cash grain	136	138	148	149	91	90	145	148
Poultry farms:								
New Jersey (egg producing)	89	83	138	141	82	76	129	130
Cotton farms:								
Southern Piedmont	117	116	124	125	91	94	117	117
Texas:								
Black Prairie	120	120	115	120	93	94	125	124
High Plains (nonirrigated)	120	123	88	97	99	100	132	129
High Plains (irrigated)	115	116	94	97	98	96	125	123
Mississippi Delta:								
Small	113	113	107	98	82	79	120	122
Large-scale	112	112	118	116	84	81	114	117
Peanut-cotton farms:								
Southern Coastal Plains	114	112	118	121	93	96	117	114
Tobacco farms:								
North Carolina, Coastal Plain:								
Tobacco-cotton	126	135	139	139	89	83	130	133
Kentucky Bluegrass:								
Tobacco-livestock, inner area	128	129	135	140	94	90	135	136
Tobacco-dairy, intermediate area	126	127	135	140	88	88	143	144
Tobacco-dairy, outer area	125	127	134	140	94	94	135	136
Spring wheat farms:								
Northern Plains:								
Wheat-small grain-livestock	123	122	114	115	75	78	131	130
Wheat-corn-livestock	120	120	114	116	89	87	130	130
Wheat-roughage-livestock	118	118	113	115	83	82	127	125
Winter wheat farms:								
Southern Plains:								
Wheat	128	128	130	133	109	100	134	137
Wheat-grain sorghum	127	127	129	132	100	99	130	131
Pacific Northwest:								
Wheat-pea	127	127	139	141	106	104	127	127
Wheat-fallow	124	126	143	145	94	94	126	129
Cattle ranches:								
Northern Plains	129	123	136	139	124	113	129	123
Intermountain region	127	134	162	166	97	115	137	138
Southwest	124	122	136	138	112	108	133	135
Sheep ranches:								
Northern Plains	122	122	133	137	88	103	142	132
Southwest	109	106	138	138	76	71	143	150

1/ Preliminary.
2/ Goods and services of nonfarm origin.


LOCATION OF TYPES OF FARMS STUDIED

*DATA NOT YET REVISED AND THEREFORE OMITTED FROM THIS REPORT
△AREAS UNDER STUDY BUT REPORTS NOT COMPLETED

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Figure 6

about 1 percent lower than in 1959. However, prices paid for feeder cattle were higher in 1960 than in 1947-49 and in 1960, hay was relatively high priced in some of the ranching areas where the crop was short.

Except on cotton farms, wage rates have increased more since 1947-49 than have prices paid for most other items used in production. These higher wage rates may have contributed to greater mechanization. In turn, the increased mechanization has acted as a brake on increasing labor costs. Mechanical picking and stripping of cotton has replaced seasonal labor on some of the cotton farms. This has been accompanied by lower wage rates on some cotton farms in 1960.

Prices paid for machinery and personal property tax rates on most farms were substantially higher in 1960 than in 1947-49. On the other hand, fertilizer prices in terms of cost per unit of plant food have increased very little, if any. As prices of other production goods rose relative to prices of fertilizer, farmers have tended to use more fertilizer.

Operators of different types of farms use resources in vastly different combinations (table 12). Moreover, the total of resources used and their composition on most of the 32 farm types in 1960 differed greatly from those in 1947-49. Total resources, or inputs (costs at constant prices) on these farms exclusive of land, interest, and family labor, averaged $6,680 per farm in 1947-49 compared with $7,260 in 1957-59. Hired labor comprised on the average around 25 percent of the purchased inputs in 1947-49 and 15 percent

Table 12. - Percentage distribution of operating expenses, specified types of commercial farms, 1947-49 and 1957-59 1/

Type and location of farm	1947-49			1957-59		
	Hired labor 2/	Feed, seed, and livestock	Other operating expenses	Hired labor 2/	Feed, seed, and livestock	Other operating expenses
	Percent	Percent	Percent	Percent	Percent	Percent
Dairy farms:						
Central Northeast	12	50	38	6	47	47
Eastern Wisconsin	8	23	69	5	28	67
Western Wisconsin	9	29	62	5	30	65
Dairy-hog farms:						
Southeastern Minnesota	9	24	67	5	25	70
Corn Belt farms:						
Hog-dairy	14	27	59	7	31	62
Hog-beef raising	11	27	62	4	32	64
Hog-beef fattening	6	62	32	3	67	30
Cash grain	8	17	75	4	19	77
Poultry farms:						
New Jersey (egg producing)	4	86	10	2	89	9
Cotton farms:						
Southern Piedmont	29	11	60	22	12	66
Texas:						
Black Prairie	37	11	52	14	12	74
High Plains (nonirrigated)	38	8	54	15	8	77
High Plains (irrigated)	41	5	54	25	5	70
Mississippi Delta:						
Small	33	14	53	16	12	72
Large-scale	60	5	35	37	7	56
Peanut-cotton farms:						
Southern Coastal Plains	14	17	69	10	14	76
Tobacco farms:						
North Carolina, Coastal Plain:						
Tobacco-cotton	50	7	43	42	8	50
Kentucky Bluegrass:						
Tobacco-livestock, inner area	31	13	56	20	19	61
Tobacco-dairy, intermediate area	9	14	77	6	11	83
Tobacco-dairy, outer area	14	18	68	9	21	70
Spring wheat farms:						
Northern Plains:						
Wheat-small grain-livestock	20	4	76	9	7	84
Wheat-corn-livestock	14	11	75	5	15	80
Wheat-roughage-livestock	12	12	76	5	14	81
Winter wheat farms:						
Southern Plains:						
Wheat	12	19	69	6	20	74
Wheat-grain sorghum	13	15	72	4	22	74
Pacific Northwest:						
Wheat-pea	17	7	76	10	7	83
Wheat-fallow	23	11	66	11	11	78
Cattle ranches:						
Northern Plains	9	14	77	7	16	77
Intermountain region	14	12	74	13	21	66
Southwest	9	51	40	6	45	49
Sheep ranches:						
Northern Plains	21	36	43	25	31	44
Southwest	14	53	33	14	44	42

1/ At 1947-49 prices.

2/ Includes payments to croppers.

in 1957-59. Twenty-nine of the 32 types of farms and ranches used less hired labor in 1960 than in 1947-49. These declines in the use of hired labor occurred despite an increase in the size of most farms, resulting chiefly from the use of larger and more efficient machines.

As a result of the general increase in the level of prices paid, operating expenses per unit of production were higher in 1960 than in 1947-49 on most of the 32 types of farms (table 13). However, production per unit of input was greater on most farms in 1960 than in 1947-49, thus tending to retard the rise in operating expense per unit. On 25 of the 32 farm types, operating cost per unit of production rose less between 1947-49 and 1960 than did prices paid.

The ratio of prices received to prices paid was lower in 1960 than in 1947-49 on all farm types studied. In 1960, prices received ranged from a low of 50 percent of prices paid on cash-grain farms in the Corn Belt to a high of 93 percent on tobacco-dairy farms in the Intermediate Bluegrass area of Kentucky. A large proportion of the expenditures on cash-grain farms are for machinery, taxes, and related inputs, prices of which have increased substantially since 1947-49. Higher prices paid for production inputs, coupled with lower prices received for grain, are chiefly responsible for the low price ratio on these cash-grain farms. Prices received for burley tobacco on the tobacco-dairy farms have been maintained at relatively favorable levels by the support programs. Together with the relatively small quantities of machinery on these farms, this has resulted in the high price ratio.

Net income per dollar of gross income was lower in 1960 than in 1947-49 on all farm types except the large-scale cotton farms in the Mississippi Delta. However, the decline in net income per dollar of gross income was less than the decline in the price ratio. Production has increased on all these farm types; this has limited to some extent the decline in net income per dollar of gross farm income.

Preliminary estimates of costs and returns for 1960 for these specified types of farms are presented in table 14. Additional information is published annually in Farm Costs and Returns, USDA Agriculture Information Bulletin 230.

Table 13. - Production, prices, costs, and income, specified types of commercial farms, 1960 1/

Type and location of farm	Index 1947-49=100			Ratio of prices received to prices paid	Net income per dollar of gross income		Index 1947-49=100	
	Prices paid	Operating expenses per unit of production	Production per unit of input		1947-49	1960	Gross farm income	Net farm income
				Percent	Dollars	Dollars		
Dairy farms:								
Central Northeast	120	114	115	79	.43	.33	140	106
Eastern Wisconsin	123	106	130	73	.40	.31	137	105
Western Wisconsin	117	100	134	75	.46	.40	138	122
Dairy-hog farms:								
Southeastern Minnesota	127	117	130	67	.54	.39	134	98
Corn Belt farms:								
Hog-dairy	123	113	117	66	.54	.39	120	86
Hog-beef raising	126	120	115	61	.56	.36	128	83
Hog-beef fattening	129	132	110	60	.54	.23	121	52
Cash grain	138	111	132	50	.64	.45	110	77
Poultry farms:								
New Jersey (egg producing)	83	78	109	84	.22	.15	110	75
Cotton farms:								
Southern Piedmont	116	112	118	82	.44	.35	146	117
Texas:								
Black Prairie	120	112	114	71	.51	.36	100	72
High Plains (nonirrigated)	123	77	146	66	.54	.56	121	126
High Plains (irrigated)	116	92	124	77	.51	.50	143	138
Mississippi Delta:								
Small	113	132	103	83	.59	.42	127	91
Large-scale	112	84	127	83	.31	.37	98	116
Peanut-cotton farms:								
Southern Coastal Plains	112	121	126	79	.61	.46	182	139
Tobacco farms:								
North Carolina, Coastal Plain:								
Tobacco-cotton	135	124	109	89	.45	.41	120	109
Kentucky Bluegrass:								
Tobacco-livestock, inner area	129	143	96	88	.52	.42	116	93
Tobacco-dairy, intermediate area	127	151	111	93	.60	.48	130	104
Tobacco-dairy, outer area	127	140	111	91	.56	.47	150	127
Spring wheat farms:								
Northern Plains:								
Wheat-small grain-livestock	122	104	120	61	.58	.41	101	71
Wheat-corn-livestock	120	93	128	63	.62	.54	108	94
Wheat-roughage-livestock	118	90	129	66	.59	.54	119	109
Winter wheat farms:								
Southern Plains:								
Wheat	128	100	120	66	.70	.63	119	107
Wheat-grain sorghum	127	84	152	66	.69	.68	134	133
Pacific Northwest:								
Wheat-pea	127	119	106	69	.65	.52	115	92
Wheat-fallow	126	124	98	67	.66	.50	95	72
Cattle ranches:								
Northern Plains	123	128	99	78	.58	.43	105	77
Intermountain region	134	166	106	73	.74	.55	148	110
Southwest	122	99	117	78	.43	.42	127	125
Sheep ranches:								
Northern Plains	122	108	122	69	.44	.35	147	117
Southwest	106	78	125	82	.31	.45	132	193

1/ Preliminary.

Table 14. - Resources, costs and returns per farm, specified types of commercial farms, 1960 1/

Type and location of farm 2/	Size of farm		Total labor used	Total farm capital, January 1	Gross farm income 3/	Operating expenses 4/	Net farm income 5/
	Unit	Number or acres					
			Hours	Dollars	Dollars	Dollars	Dollars
Dairy farms:							
Central Northeast	Milk cows	28.8	4,400	40,600	12,341	8,280	4,061
Eastern Wisconsin	do.	21.9	4,150	45,350	9,950	6,860	3,090
Western Wisconsin	do.	21.0	4,160	31,260	8,476	5,058	3,418
Dairy-hog farms:							
Southeastern Minnesota	do.	19.9	3,990	49,960	9,839	5,981	3,858
Corn Belt farms:							
Hog-dairy	Cropland	109	4,420	56,240	11,939	7,323	4,616
Hog-beef raising	do.	112	3,500	48,520	8,171	5,204	2,967
Hog-beef fattening	do.	155	4,150	83,370	23,221	17,799	5,422
Cash grain	do.	206	3,230	109,660	15,159	8,379	6,780
Poultry farms:							
New Jersey (egg producing)	Layers	4,800	5,700	55,730	29,738	25,276	4,462
Cotton farms:							
Southern Piedmont	Cropland	93	4,400	24,480	5,237	3,390	1,847
Texas:							
Black Prairie	do.	124	2,840	37,760	6,123	3,898	2,225
High Plains (nonirrigated)	do.	360	3,160	59,140	14,417	6,345	8,072
High Plains (irrigated)	do.	326	7,050	113,950	29,889	15,045	14,844
Mississippi Delta:							
Small	do.	38	3,200	13,550	4,168	2,409	1,759
Large-scale	do.	640	30,260	205,770	65,017	41,243	19,978
Peanut-cotton farms:							
Southern Coastal Plains	do.	73	3,950	16,500	6,939	3,717	3,222
Tobacco farms:							
North Carolina, Coastal Plain:							
Tobacco-cotton	do.	46	5,930	25,250	8,517	5,026	3,491
Kentucky Bluegrass:							
Tobacco-livestock, inner area	do.	60	4,250	98,940	13,073	7,579	5,494
Tobacco-dairy, intermediate area	do.	25	3,500	21,780	5,197	2,705	2,492
Tobacco-dairy, outer area	do.	41	4,590	40,510	9,745	5,163	4,582
Spring wheat farms:							
Northern Plains:							
Wheat-small grain-livestock	do.	569	2,810	51,630	10,698	6,309	4,389
Wheat-corn-livestock	do.	371	3,540	52,540	10,245	4,717	5,528
Wheat-roughage-livestock	do.	518	3,190	47,460	10,398	4,770	5,628
Winter wheat farms:							
Southern Plains:							
Wheat	do.	560	3,040	91,270	16,602	6,104	10,498
Wheat-grain sorghum	do.	568	3,110	88,540	17,859	5,713	12,146
Pacific Northwest:							
Wheat-pea	do.	524	3,470	177,480	21,290	10,270	11,020
Wheat-fallow	do.	980	3,640	138,470	19,395	9,752	9,643
Cattle ranches:							
Northern Plains	Cows	93.6	4,060	82,680	11,720	6,732	4,988
Intermountain region	do.	137.9	5,210	87,930	17,346	7,773	9,573
Southwest	do.	150.2	3,710	161,590	16,713	9,611	7,102
Sheep ranches:							
Northern Plains	Sheep	1,383	8,820	100,650	23,242	15,168	8,074
Southwest	do.	1,405	5,890	208,530	22,421	12,319	10,102

1/ Preliminary.

2/ All except large-scale cotton farms are family operated.

3/ Includes income from farming and Government payments.

4/ Includes property taxes, but no rent or interest.

5/ Returns to capital and unpaid labor.

CUSTOM FEED GRINDING AND MIXING FOR THE SMALL FARMER

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Feeding of ground and mixed feed has increased rapidly in many of our important livestock areas. To meet the demand, many local elevators and feed dealers have installed large-capacity grinding and mixing equipment, and mobile feed mills have become a common sight on the rural highways in these areas. To learn more about farmers' experiences with feed processing, we interviewed a random sample of farm operators in northwestern Illinois in June 1960. We also visited operators of custom feed grinding and mixing services in the area.

Although operators of large farms often use a custom grinding and mixing service, attention in this article is directed to the small farmer. Many of these men prefer ground and mixed feed, but because of the small volume to be handled or for other reasons, they do not feel justified in owning such equipment.

When only small quantities of a particular ration are needed, farmers usually prefer to keep their feed fresh by grinding and mixing it frequently, and in small amounts. Therefore, this analysis considers several different batch sizes.

Most of the farmers interviewed were located near local mills with stationary grinding and mixing equipment, and the services of one or more mobile mills were also available. We asked the farm operators which, if any, custom service they used and how much of their own time was required. Custom operators were asked about the services they performed and their charges. With this information, we worked out a "rule of thumb" as to the conditions under which each method was the lower cost one.

Let's take the case of a hog producer as an example. He has a small truck, so he can either haul his grain 5 miles to the local elevator and have it ground and mixed, or have a mobile mill do the job on the farm. His protein supplement, which makes up 20 percent of the ration, costs the same either way, and presumably he gets equally good results from either method. The costs and farm labor requirements for batches of various sizes are shown in table 15. The operator of the mobile mill charges $5.50 per batch, regardless of its size, and he can grind and mix a maximum batch of 3,000 pounds. The cost per ton is thus $5.50 per ton with a 1-ton batch, while it is only $3.67 per ton for a full batch of 1.5 tons. Similarly, the amount of the farmer's time required per ton is less with a full than with a partial batch.

If he hauls his grain to the mill, it costs the farmer $0.50 to drive his truck the 10-mile round trip. Grinding and mixing charges are $0.15 per 100 pounds ground. Since the ration is 80 percent corn, only 1,600 pounds of grain is ground for each ton of feed mixed. This is \$2.40 per ton (1,600 x .15 = \$2.40), or \$0.12 per 100 pounds mixed. The small savings in total cash cost as the size of the batch increases is due to the constant transportation cost of \$0.50, whether or not a full load is hauled. And, as with the mobile mill, the labor requirement per ton is less with a full than with a partial load.

Table 15. - Cash costs and farmer's labor requirements per ton for grinding and mixing specified quantities of feed

Size of batch (tons)	Cash costs per ton			Labor requirements per ton		
	Mobile mill	Farmer hauls	Difference	Mobile mill	Farmer hauls	Difference
	Dollars	Dollars	Dollars	Hours	Hours	Hours
0.75	7.33	3.07	4.26	1.0	2.2	1.2
1.00	5.50	2.90	2.60	.8	2.0	1.2
1.25	4.40	2.80	1.60	.7	1.8	1.1
1.50	3.67	2.73	.94	.5	1.5	1.0

Which is the more economical method? Cash costs are lower for this hog producer to haul his grain to the mill, but it takes more time. What the least-cost method is, then, obviously depends upon what the farmer's labor is worth. That is, the choice depends upon what other uses he has for his labor. If he can use his labor to better advantage at other farmwork, it may pay him to hire the mobile mill.

As an example, let's assume that it's the slack season and the hog producer decides that if he can make as much as \$0.50 an hour by doing it, he'll haul his grain to the mill. He needs 1 1/4 tons of feed at a time, so according to the table he can save \$1.60 per ton by taking about 1.1 hours more time to haul it in. In effect, he saves, or "earns," \$1.60 in 1.1 hours, or about \$1.45 per hour. So it pays him to haul it to the local mill.

But if he must stop planting corn to take a load of feed to town, he may decide that his time is worth \$2.00 an hour. Since with a 1 1/4-ton batch his labor earns only \$1.45 an hour by so doing, he will be ahead of the game to hire the mobile mill and use his labor where it brings the highest return -- that is, in planting corn. 1/

1/ Another way of making the same comparison is to figure the total cost (including labor) for each method separately, thus:

Labor valued at \$0.50 an hour:
Haul to town: \$2.80 + (1.75 hrs. at \$0.50) = \$3.68
Mobile mill: \$4.40 + (0.66 hrs. at \$0.50) = \$4.73

Labor valued at \$2.00 an hour:
Haul to town: \$2.80 + (1.75 hrs. at \$2.00) = \$6.30
Mobile mill: \$4.40 + (0.66 hrs. at \$2.00) = \$5.72

It isn't necessary to figure out the least-cost method for each size of batch at each labor rate. A single chart can show the least-cost method for any batch from three-fourths of 1 ton to 1 1/2 tons, and for a wide range of labor rates (fig. 7). In this illustration, a line separates those combinations of batch sizes and labor rates for which the costs of hauling to town are less from those combinations for which the costs of hiring a mobile mill are less. With smaller batches and lower labor rates (to the left of and below the line), it costs less to haul the feed to town; but with larger batches and higher labor rates (to the right of and above the line) the mobile mill is the lower cost method.

This chart can be used with the same combinations compared earlier. The first was a combination of a $0.50 labor rate with a 1 1/4-ton batch. If we locate the 1 1/4-ton mark on the horizontal scale of figure 7, then move straight up to a point opposite the $0.50 mark on the vertical scale (point "A" shown in figure 7), we are in the area marked "haul to town," and this is the lower cost method. But if we move on up from this point to one opposite the $2.00 labor rate on the vertical scale (to point "B" in figure 7), we land in mobile mill territory, and this is the less costly alternative.

To use the chart for any other combination, it is only necessary to locate the size of batch on the bottom (horizontal) scale, then to move straight up to the point opposite (that is, at the same height as) the appropriate labor rate.

With other custom rates or labor requirements, the break-even points will differ slightly, but the same general relationships will prevail. This kind of analysis can be used regardless of relative costs or labor requirements, so long as they are known.

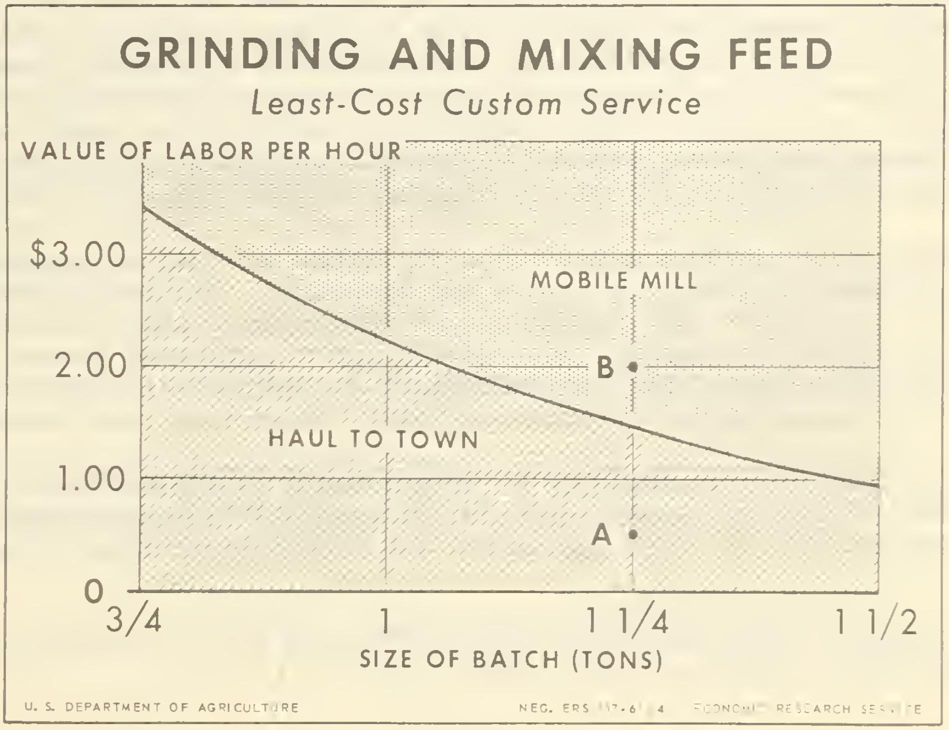

Figure 7

FARM EXPENDITURES, PURCHASED INPUTS, AND COST RATES IN THE MID-1960'S

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An analysis of changes taking place in agriculture is useful in providing indications of needed adjustments. This paper is intended to present recent trends in farm production expenditures, purchased inputs, and cost rates, with projections to 1965. The projections are based on the assumptions that the general economic conditions and trends in technology of the 1950's will continue.

The estimates are derived from projections of current trends; hence, they are not forecasts. If the assumptions should hold true, the projections of current trends would roughly approximate conditions in 1965. But considerable error may result as unforeseen events may modify the assumptions.

Current trends are based on data published by the Agricultural Marketing Service, USDA. 1/ Changes in quantities of resources used in production were estimated by deflating annual current-dollar expenditures for the years 1940 to 1959 to the 1947-49 price level. For most input components, the 1952-59 trend was projected to 1965, using the least-squares method. A longer-term, 1940-59, trend seemed more appropriate for certain other components, including feed, livestock, property taxes, and seed.

Total purchased inputs (quantities of purchased or hired goods and services used in production) would be about 12 percent greater in 1965 than in 1959. With greater specialization in agricultural production, more goods and services would be bought or hired from farm-related industries and from other farmers. Size of farm would increase not only through consolidation of present units, but through use of additional purchased inputs, some of which would substitute for relatively high-priced land and labor (table 16).

Nonpurchased inputs are projected to decline further as unpaid family labor is displaced by mechanical power and equipment. Figure 8 illustrates the decline from 1940 to date in the use of farmer-owned inputs -- largely unpaid labor and land -- and the increase in use of purchased inputs. Since 1940, nonpurchased inputs have declined about 26 percent while purchased inputs have increased about 44 percent. Total inputs rose about 6 percent.

These changes in composition of inputs would be accompanied by changes in the nature of inputs. Labor would become more skilled, as demanded by greater mechanization of field operations and materials-handling techniques.

1/ U. S. Agricultural Marketing Service, The Farm Income Situation, U. S. Agr. Market. Serv. FIS-179, 55 pp., July 1960.

Table 16. - Distribution of purchased inputs and production expenses, with estimated changes from 1959 to 1965

Expense item	Distribution of -				Change 1959 to 1965	
	Purchased inputs 1/		Production expenses		Purchased inputs 1/	Production expenses
	1959	1965	1959	1965		
	Percent	Percent	Percent	Percent	Percent	Percent
Feed purchased	23.4	24.7	18.2	19.2	19	19
Motor vehicle operation	10.2	11.0	11.5	12.9	20	26
Machinery repairs	1.4	1.2	2.0	1.9	1	10
Motor vehicle replacement	4.9	4.4	6.6	6.3	-1	8
Machinery and equipment replacement	3.6	3.7	5.1	5.6	14	24
Livestock purchased	10.9	10.8	10.7	8.6	12	-10
Hired labor	9.0	6.9	11.5	10.0	-14	-3
Fertilizer and lime	5.9	5.9	5.7	5.6	11	11
Service building repair	1.5	1.5	1.8	1.9	14	20
Service building replacement	2.1	2.1	2.5	2.7	14	20
Property taxes	5.6	6.1	5.7	6.2	24	24
Seeds, plants, and trees	2.8	2.6	2.1	1.9	5	4
Interest on real estate mortgages	2.3	2.7	2.3	2.8	32	39
Pesticides	1.1	1.2	1.0	1.0	20	20
Other supplies and services	9.4	9.9	9.6	10.3	17	23
Rent to nonfarm landlords	5.9	5.3	3.7	3.1	0	-5
Total	100.0	100.0	100.0	100.0	12	13

1/ Production expenses adjusted to 1947-49 average prices.

Greater reliance would be placed on farm-related industries and businesses to supply services once performed by farm labor, such as overhauling machinery, building repair and construction, disease and insect control, feed mixing, and to a more limited extent, supervision and management functions. Labor used on large family-operated farms may become more specialized. Greater specialization of production on fewer and larger farms would also create or continue a demand for more powerful tractors, more specialized equipment, more effective pesticides, and more functional service buildings, all of which portend an increasing role for farm-related industries and greater cash expenditures by farmers.

Prices paid for production goods and services in 1965 are projected to 7 percent above the August 1960 level. Prices paid for items of farm origin -- feed, seed, and livestock -- would average about 2 percent less, while prices paid for items from nonfarm sources would be 9 percent higher than in 1960 (fig. 9). As indicated in table 17, livestock prices would decline by as much as 7 percent, while prices of new motor vehicles would rise by 10 percent. Wage rates are projected to rise another 9 percent by 1965. Prices paid for fertilizer and pesticides are extended at about the 1960 level.

The rise in wages projected for hired labor reflects the continuing nonfarm demand for labor and the wages necessary to keep the fewer, more skilled workers on farms. Even though power and machinery costs rise substantially, the cost advantage of mechanization would heighten. The composite index of prices paid for power and machinery would increase 9 percent over the 1960 level. The volume of power and machinery inputs would rise by as much as 13 percent.

Prices paid for feed are projected with little change during the next few years. Lower prices paid for feeder livestock during the declining phase of the cattle-production cycle projected for 1965, combined with favorable feed prices and a strong demand for meat, would probably result in expanded feeder operations. Feed transfers from crop farms, primarily cash grain

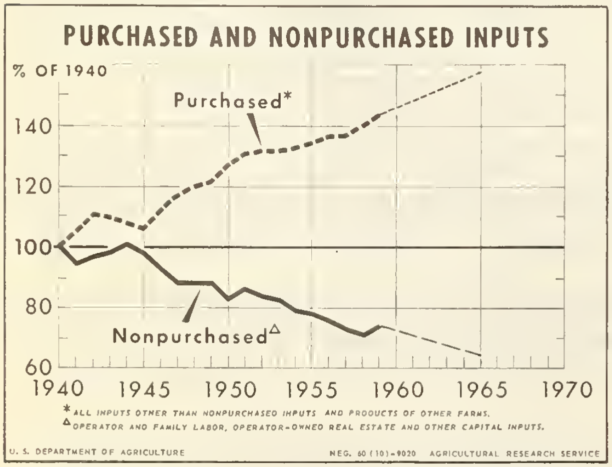

Figure 8

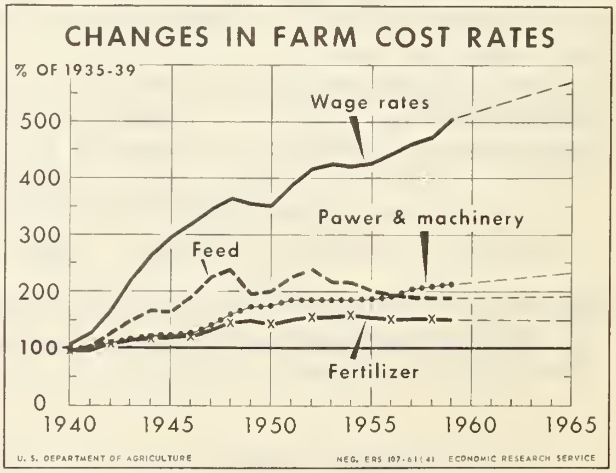

Figure 9

Table 17. - Projected changes in farm cost rates, 1960 to 1965

Production item	Percentage change	Production item	Percentage change
Feed	2	Fertilizer	0
Livestock	-7	Wages	9
Seed	-2	Taxes per acre	23
Motor supplies	5	Interest per acre	39
Motor vehicles	10	Average, all items	7
Farm machinery	7	Average, farm origin	-2
Farm supplies	4	Average, nonfarm origin	9
Building and fencing material	5		

farms, to livestock-feeding farms would be larger. Purchases of mixed feeds that include growth stimulants, antibiotics, and other medications would continue to increase.

While prices of fertilizer are projected to remain close to present levels, the volume of fertilizer used would increase about 11 percent. Recent studies indicate high marginal returns per dollar invested in fertilizer on some crops. Ibach 2/ estimated that 1958 rates of fertilizer applications on all crops and pasture in the United States returned about $3 for an additional dollar's worth of fertilizer applied. This rate of return would decline as more farmers increased their rates of application.

2/ Ibach, D. B. and Lindberg, R. C., Economic Position of Fertilizer Use in the U. S., U. S. Dept. Agr. Agr. Inform. Bul. 202, 31 pp., illus., Nov. 1958.

ASPECTS OF FUTURE INVESTMENTS IN DAIRY-FARM BUILDINGS

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This paper presents an examination of certain aspects of the future requirements for dairy service structures in view of expected changes in the market demand for milk and in advancing technology.

In figure 10, three forces that will influence the demand for dairy farm service structures in the coming years are shown: (1) The total output of milk, (2) the level of production per cow, and (3) the number of milk cows kept on farms. The chart indicates that although total production is increasing, the total supply is being provided by fewer, higher-producing cows. These developments have been accompanied by a reduction of almost a third in the number of dairy farms since 1950.

A study of the projected needs for farm products indicates that the amount of milk required in 1975 would be about 25 percent greater than the level of production in 1954. 1/ If milk production per cow should increase at the rate that occurred from 1946 to 1955, production per cow would be about 8,500 pounds of milk per year in 1975. However, if improvement should continue at the rate of increase experienced from 1949 to 1960, the average cow would produce about 10,000 pounds of milk annually by 1975.

Table 18 summarizes the estimates of amounts of investment and annual costs of dairy service structures in 1957-59 and in 1975. Total investment is based on the assumption that investment per cow will remain constant at $195 in terms of 1947-49 prices. Investment per cow represents an average for three major dairy regions in the United States. Annual costs other than capital charges are assumed to be 5 percent of total investment and include depreciation, repairs, and maintenance. 2/ The two projected cow populations for 1975 are each capable of supplying the 1975 demand for milk expected at that time, provided production per cow is at the level indicated. Investments and costs are figured at 1947-49 prices.

The growth in dairy farm size is often interpreted as an increase in the future demand for service structures. In terms of total demand, however, this does not appear to be the case. Although present projections indicate that, in the future, dairy farms would be larger -- that is, they would have more cows and a greater level of investment per farm -- they would be considerably fewer in number. The growth aspects of dairying are evident in figure 11.

1/ Barton, G. T., and Rogers, R. O., Farm Output - Past Changes and Projected Needs, U. S. Dept. Agr. Agr. Inform. Bul. 162, August 1956.

2/ Dairy Cattle Housing in the North Central States, Wis. Agr. Expt. Sta. Bul. 470, Sept. 1946.

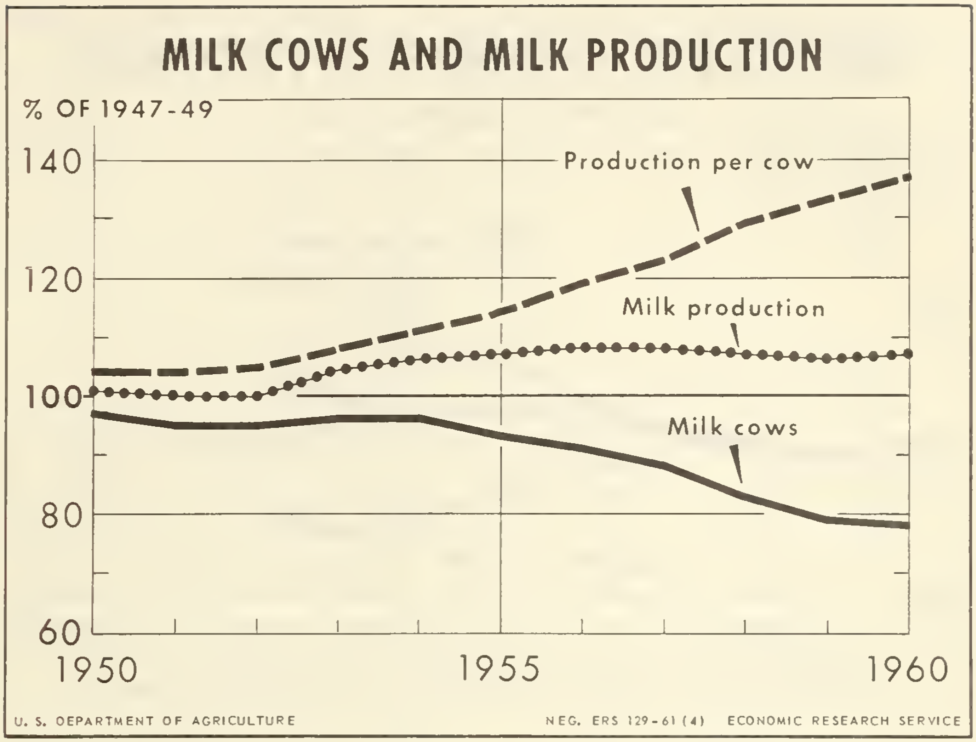

Figure 10

Table 18. - Estimated investments and costs for dairy service structures

Period	Output per cow	Number of cows	Investment 1/	Annual cost
	Pounds	Thousands	Million dollars	Thousands
1957-59	6,568	18,795	3,665	183,250
1975	8,500	18,176	3,544	177,200
1975	10,000	15,450	3,013	150,650

1/ Investment per cow assumed to be $195, the same as it was in 1947-49.

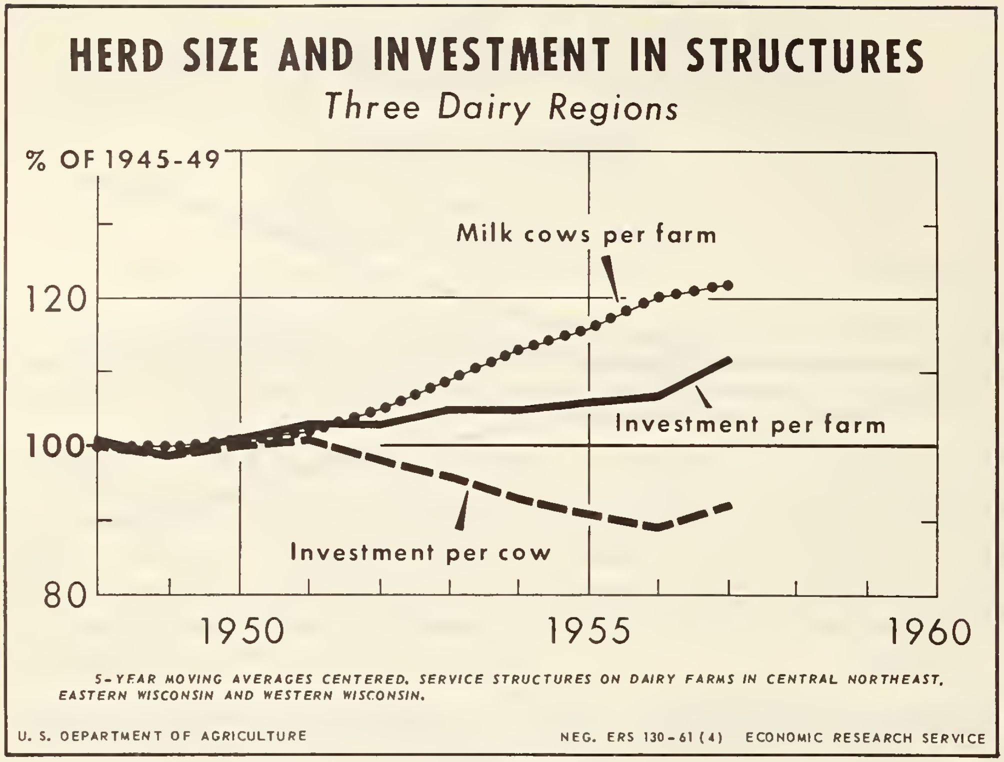

Figure 11

The indexes reflect changes in the average value of service structures per farm and in herd size on dairy farms in the Northeast and in eastern and western Wisconsin since 1947-49. Investment per farm in service structures has increased about 12 percent, while herd size has advanced 22 percent. As herd size is increasing more rapidly than level of investment, capital outlay per cow for adding more cows to the remaining herds is declining. In the last few years, however, this trend has been reversed, and investment per cow has been increasing. The recent change can be partly explained by the increased utilization of farmstead equipment and the incorporation of the value of built-in equipment into the value of dairy buildings. It is assumed that investment per cow would approach the 1947-49 level by 1975.

If, on a national basis, investment in service structure per cow should remain below the 1947-49 average, total investment in 1975 would decline from present levels because the number of milk cows is projected to be about the same or smaller than the present number.

Estimates and relationships are expressed on a constant-dollar basis. However, by 1975 the actual capital outlay required for service structures and the annual cost for depreciation, maintenance, and repairs will be determined largely by changes in the price level.

A number of factors could influence these investment and cost estimates for dairy service structures. For example, the emergence of new systems that increase labor efficiency and net farm income tend to stimulate investment. These innovations encourage the substitution of capital for labor, resulting in a greater level of investment per farm and a more rapid turnover in structures and equipment. But the rate of adoption of these new systems in dairy farming has been rather slow. In 1958, only 5 percent of the total cow population was milked in milking parlors equipped with pipeline milkers. Yet this system has been available for several years.

In addition, new developments in roughage-handling systems could have an impact on investment in roughage-storage structures. Silages are making up a greater percentage of the total roughage intake of dairy animals. The ratio of hay to silage has changed from about 1 pound of hay to 0.7 pound of silage per cow per season in 1949 to a 1: 1.1 ratio in 1960. This changing ratio has shown a gradual but consistent pattern since 1949. This has been due largely to improved methods of handling and storing crops in silage form. If this trend continues, greater investment per farm would be expected in silage-storage structures in the future. On the other hand, the development and adoption of roughage systems, such as "pelleting" and "wafering," whereby a unit weight of feed occupies less volume, would have a tendency to depress the level of investment in storage structures.

Another development that has occurred in recent years is the apparent increase in the rate of adoption of materials-handling equipment. Although this development may not increase the level of investment in farm structures alone, it might raise investment in service buildings and equipment. The increase in the shipments of specified items of materials-handling equipment from 1955 to 1959 is shown as follows:

Item	Percentage increase
Silo unloaders	536
Pipeline milking units (individual clusters)	171
Barn cleaners	150
Mechanical cleaners	65
Elevators	26

In summary, from current trends and projections, it appears that the 1975 demand for milk would be met with a cow population roughly the same or smaller than the present one. The number of dairy farms probably would be considerably less than the present number. As a result, total investment in dairy structures in constant dollars would not likely be greater than at present. Also, the annual cost of structures per cow would be lower. A greater level of investment in the future is possible, however, if farmers should decide to increase substantially the rate of adoption of existing and future farmstead innovations.

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